

A HIGH RISE MULTI-USE BUILDING FOR BOSTON:
AN INVESTIGATION INTO THE NATURE AND ORGANIZATION OF
PUBLIC SPACE IN A TALL BUILDING

by

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SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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ABSTRACT

This thesis is essentially a study of how to organize public space vertically in a tall building. In most cases, high rise buildings tend to be organized in one of two ways, either centrally, with the core elements in the center of the building footprint, or linearly, with core elements at the ends of the building footprint, (usually, with a corridor connecting the two ends). In both cases, the public space created in these kinds of organizations tends to be neutral, devoid of life, dark, and alienating. This thesis explores how the necessary service core elements, of a tall building, can be used as spatial elements to develop public space that is conducive to social/communal gathering and interaction on a variety of levels, through the use of communicating floors; and develop public space that has the capacity to accommodate a variety of amenities that contribute to a better sense of urbanity in the air.

The thesis is divided into three major sections - the first section, vertical organization, is an examination of the nature and organization of service core elements and public space, with a design illustration presented to illustrate an alternative core organization in terms of its proto-typical implications. The second section, a design proposal, uses the alternative service core organization, for a high rise multi-use building on a specific site in downtown Boston. Finally, the third section is a conclusion and summary to discuss findings about the nature of this alternative organizational concept. An appendix is included to illustrate similar organizational attitudes explored in a past studio experience, at M.I.T., for a residential high rise building.

Thesis Supervisor: Robert J. Slattery
Title: Associate Professor of Architecture

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My readers and my advisor, Bob Slattery, for their help and suggestions.

Fred and Peggy Alper and their family, for their kindness, support, and generosity.

My best friends, Steve and Caroline.

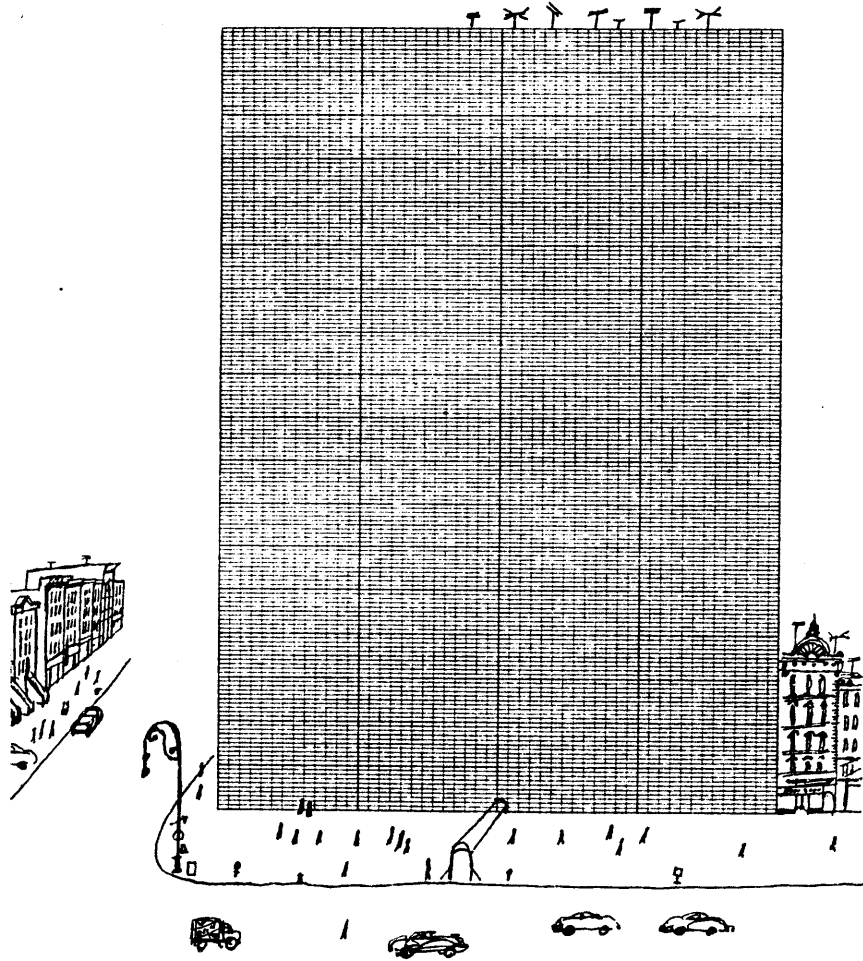
Finally, my parents, for their very generous and unwavering support throughout the course of my studies at M.I.T.

TABLE OF CONTENTS

5

SECTION 1	PAGE
1. INTRODUCTION	7
2. VERTICAL ORGANIZATION	15
3. DESIGN ILLUSTRATION	35
 SECTION 2	
4. DESIGN PROPOSAL	53
 SECTION 3	
5. CONCLUSION & SUMMARY	85
6. APPENDIX	95
7. BIBLIOGRAPHY	113

INTRODUCTION



Drawing by
Saul Steinberg

In the past, high rise structures represented a symbolic function in the city. Tall structures were erected to proclaim the existence of power or the identity of a unique civilization or social group. In many early towns and cities, the clock tower or the church steeple stood alone as a punctuator of the natural landscape and performed the unifying function of representing the town or city as a whole. A tall structure was seen as a source of identity and civic pride. The role of a tall structure in the past, was predominately symbolic more so than utilitarian.

In contemporary architecture, the role of the high rise has changed. Whereas a tall building of the past fulfilled a symbolic function, their significance is diminished in contemporary cities as each building is merely one of many, all with comparable vertical dimension and size. The symbolic role of the contemporary high rise has come to signify a corporate image, or an affluent way of life, or the existence of power of its owner(s) or occupants. Consequently, these buildings have gone from a source of civic pride that embraces its context to an instrument of private enterprise that alienates adjacent buildings and surrounding street life.

Contemporary designers, in most case, appear to spend most of their time concerning themselves with the exterior physical appearance of the



Engraving of Venice
Skyline

high rise building. Needless to say, this is certainly important, but all too often this concern for exterior appearance becomes an end in itself. The interior planning of a high rise office building tends to be a standardize formula that is given little concern other than how to adjust it to the size of the current project. Consequently, the interior space of most any high rise building tends to be nothing more than an elevator service core with connections to fire stairs all surrounded by empty flexible space to be figured out by someone else. This makes for a drab, alienating, hermetically sealed artificial environment, with little connection to the natural world of light and air.

My interest in the nature of high rise buildings stems from a longstanding concern for how these buildings effect: the surrounding context at an urban level; how people have to live and work in these types of buildings; and how high rises as a building type have certain generic problems and constraints associated with their vertical morphology.

Specifically, I was interested in how one might organize public space in a tall building that has the capacity to accomodate a variety of functions and amenities; how to make public space that is more than closed elevator lobbies with connections to fire exits; finally, how public space might be integrated within the workplace through the use of communicating floors that offer the potential for social interaction on a variety of levels.

Initially, when I began this thesis my intention was to concentrate on a design proposal for a specific site in downtown Boston. However,



Empire State Building
Shreve, Lamb & Harmon

as the thesis evolved it became more specific, focusing on the problem of public space and service core arrangements. The site I chose was one I had used in a previous design studio for a different project altogether. It was somewhat disappointing for me to learn that the previous semester's experience with the site was of little help when I proposed a high rise building for the same site. I found that extensive site planning was needed once again, since my thesis project was now a different animal completely, from that of the previous semester's low rise scale project. None the less, I wanted to concentrate on some specific aspect about my building. I chose the public space service core issue and found it interesting, particularly from a purely academic point of view, of how to break a relatively large project down into small pieces and consider the issues involved in detail, and the ramifications of those issues on the entire project as a whole. The unfortunate drawback to this method is that time constraints, of one semester, do not allow one to look at the project on the whole in any detail. It becomes, instead, a series of parts and suggestions for what the project might look like. A design proposal section has been included in this thesis, though it is far from complete, it does allow the reader to understand the issues I looked at and give some sense of what the overall project might look like. My feelings and discoveries, about the range of issues explored are explained in greater detail in the conclusion and summary section of this thesis. I wanted my thesis to be a viable proposal for a large office building project and at the same time be specific enough to explore in some detail, what I

considered to be a problem issue associated with this building type. In general, this thesis is an attempt to do that; I hope the results will be of interest to others.



Tall Buildings
Manhattan

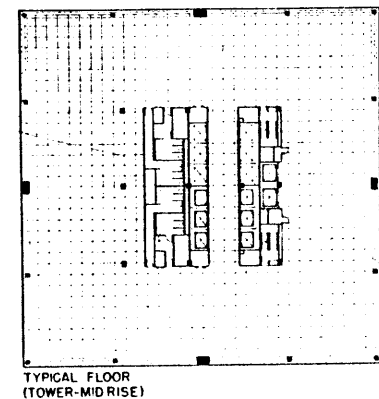
VERTICAL ORGANIZATION

Few of the architects ever move into one of their own ephemeral creations. They know what is best for them - places with solid walls, solid doors, and real windows that let in real air and real light. The open plan is for somebody else, preferably somebody who is deaf to noise, blind to views, and equipped with his or her own portable supply of air.

Peter Blake in Form Follows Fiasco 1974

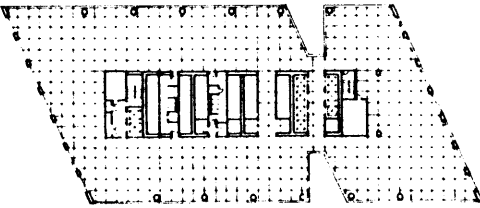
Traditionally, high rise buildings have developed in certain patterns as a result of structural limitations, economic considerations, zoning requirements, and the desire of clients and designers to express certain cultural values regarding the image of the building. In each case, little attention has been paid to how one might organize public space in a tall building that allows for a greater sense of social interaction and communal gathering. This section of this thesis will discuss how tall buildings are typically organized and the drawbacks to that kind of organization. An analysis of several specific tall buildings that use different types of organizations will be examined. Finally, an alternative type of organization will be explained and illustrated showing how public space might be incorporated as part of the service core elements through the use of communicating floors. This alternative proposal will be compared diagrammatically with other types of organizations to assess its advantages and disadvantages.

Typically, the organizational diagram of most tall buildings is to place the service core elements in the center of the building footprint. Core elements are defined as elements that provide vertical access to any particular floor of the building, such as elevators for vertical transportation, fire stairs to insure the safety of the inhabitants, mechanical chases for plumbing, heating, ventilation, air conditioning,

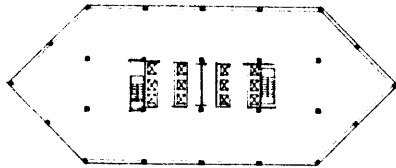


Typical Centralized
Organization

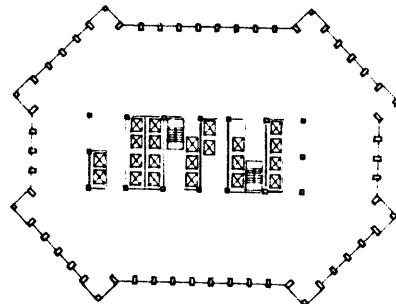
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First City Tower
Houston



Medical Mutual
Cleveland

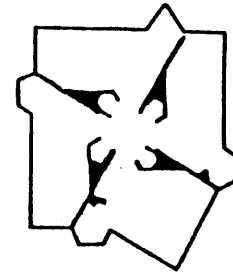


Dravo US Steel
Building

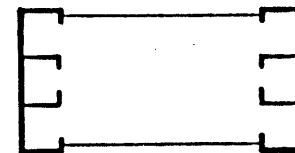
etc. In a centralized organization, a building with the service core in the center, the design intention is to provide as much leasable area at the edges of the building to provide access to views and light. In this kind of organization, the need for long corridors is eliminated and the service core is used strictly as a means of vertical passage, not as a potential space defining element. In most centralized organizations, the service core is simply consolidated to contain the minimum amount of facilities necessary for the functioning of a particular floor. The space left over, for the most part, is simply undesigned as a measure of a buildings' flexibility. The public space is nothing more than the circulation from elevator to firestairs. Consequently, the building can be read as a kind of neutral shell, in which work stations are simply inserted with little definition in mediating between the scale of the building and the scale of the individual. Due to technological advancements in lighting and mechanical systems, the building becomes a hermetically sealed artificial environment with little relationship to the natural environment and little potential for individual control in varying those environmental conditions. It becomes unlikely that space can be made that contributes to some sense of informal socializing or communal gathering for breaks, eating, or unstructured conferencing for communication and idea exchange; so necessary in any work environment. For the most part, these types of buildings are the result of cultural values on the part of clients and designers about the nature of the work place - values which often had little connection with the real nature of how offices actually work.

Having examined buildings with centralized service cores, a departure from that organizational type is F.L. Wright's H.C. Price Tower in Bartlesville, Oklahoma. The building is organized so that floors cantilever from interior piers, leaving floor areas at the building exterior column free. The piers referred to by Wright as a "segmented quadruple," are arranged in a cruciform configuration defining a central lobby space on each floor and individual units.¹ They divide the building into four parts, three of which are used as offices and the remaining, a duplex apartment. The piers serve to carry mechanical equipment and elevators within their hollow cavities, as well as serving as the structural system.² The core elements in the Price Tower help define the buildings central lobby space, as well as the individual offices and apartment units. Although the "segmented quadruple" essentially maintains a centralized organization. The circulation space, however, has become a positive space with enough dimension to be a use space.

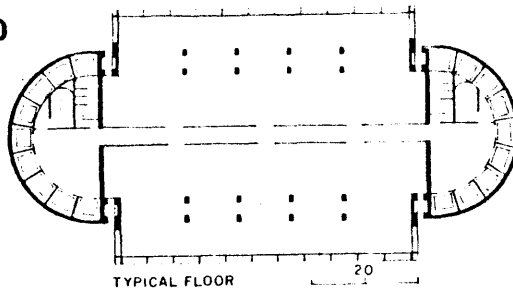
The architectural firm of Hugh Stubbins and Associates have designed a high rise office building for the Federal Reserve Bank in Boston, completed in 1978. The Federal Reserve Bank presents a different attitude to the core configuration previously described. The Federal Reserve Bank has its core elements at the ends of the building, which allows the space between the service core elements to become a



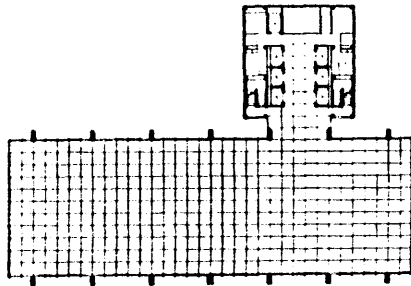
H.C. Price Tower
F.L. Wright Architect



Federal Reserve Bank
H. Stubbins Architect



O.C.B.C. Building
I.M. Pei Architect



Inland Steel Building
S.O.M. Architects

primary use zone. This organizational attitude illustrates that the service core need not be restricted to points of vertical passage, but may also function as space defining elements as well. Another example of this kind of service core organization is I.M. Pei's O.C.B.C. Office Building for Singapore.

The Inland Steel Administration Company Building in Chicago is an example of a different type of core organization. The Inland Steel Building was designed by Skidmore, Owings, and Merrill and completed in 1959. In this building, the service core has been completely removed from the office space altogether, and accommodated in a separate, tower like annex to the main block. The same basic idea is expressed in the structure; all columns are placed on the periphery of the block, and the framework consist of a series of multi-story single-bay portal frames.³ The architects intention was to provide maximum flexibility for large open landscaped office. In this case, perhaps too much flexibility.

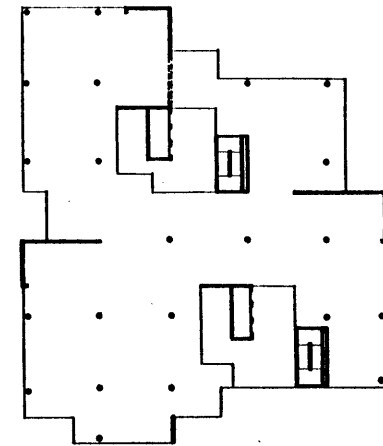
AN ALTERNATIVE

Having examined several different types of vertical service core organizations, this section will propose an alternative type of organization that attempts to incorporate public space as part of its service core structure. Thus, allowing the vertical core elements to function as space defining elements. To accomplish this, it is necessary to examine the building codes for a moment, as they are often the determining factor in what can actually be constructed. One way to

increase social interaction within the high rise footprint and provide places for communal interaction, would be to open the floors up so that there was increased spatial dimension and the possibility of more natural diffused light. This can be done by developing a three floor "cluster" with public space that opens vertically within the three floors, as a small atrium or court like space. The notion for a three floor cluster is developed in part from the building cones, which call this concept, communicating floors. An excerpt from the Massachusetts State Building Code as it relates to communicating floors is included here:

616.10 Communicating floors. In other than use groups A-4 (assembly, schools) or I (institutional), any building with low hazard occupancy (use group S-2), or with ordinary hazard occupancy (use groups B, M, R-1 and R-2) with automatic sprinkler protection where necessary to the effective utilization of a building site with sloping grade or otherwise essential to the functional design of the building, not more than three (3) communicating floors levels may be permitted without enclosure or protection between such areas, only provided all the conditions described below are met:

1. the lowest, or next to the lowest, level is a street floor;
2. the entire area, including all communicating floor levels, is sufficiently open and unobstructed to be assumed that a fire or other dangerous condition in any part will be immediately obvious to the occupants of all communicating levels and areas;
3. egress capacity is simultaneously sufficient for all the occupants of all communicating levels and areas, all communicating levels in



Alternative Core
Organization

the same fire area being considered as a single floor area for purposes of determination of required egress capacity; and

4. each floor level, considered separately, has at least one-half (1/2) of its individual required egress capacity provided by an exitway or exitways leading directly out of that area without traversing another other communicating floor level or being exposed to the spread of fire or smoke therefrom.⁴

A three floor cluster of communicating floors is the maximum the building codes will allow one to open up floors vertically, for increased vertical dimension and still be able to provide the necessary exit requirements and fire and smoke protection.

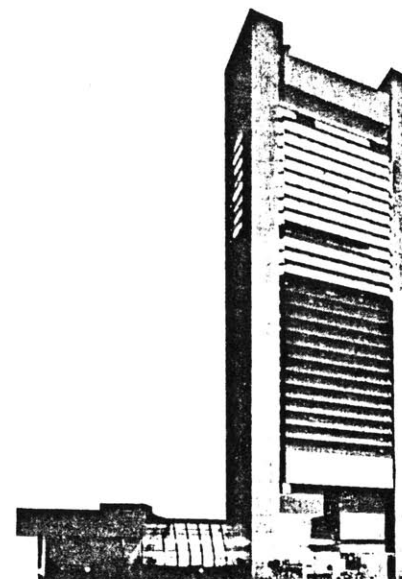
SERVICE CORES

In addition to developing the concept of communicating floors, this alternative organization differs in its treatment of the service core elements. The service core elements are split to form "nodes" where lease space can be developed around them. The service core elements are glass enclosed for smoke protection and provide access into the lease space, as well as the required exits out of the lease space. In this organizational scheme, the service cores contain elevators, fire stairs, restrooms, and mechanical chases. The public space is generated between the service core elements, towards the center of the building footprint. The center tends to be the darkest part of the building and the potentially least usable thus, it becomes ideal as a place to develop

openess and increase natural light. By splitting the service core elements, each core develops a sphere of influence around it as it is encircled by lease space. This idea also allows for expansion in a variety of ways, simply by the addition of a new service core "node." It's possible that F.L. Wright had this concept in mind in his study of high rise buildings when he drew his sketch revealing the additive nature of the Price Tower. The decentralized, alternative organization scheme, in its parts, is similar to F.L. Wright's Price Tower. The separation of service core elements, with usable space between, is analogous to Hugh Stubbins's Federal Reserve Building in Boston. A decentralized service core organization, lends itself to considerable structural advantages in providing support against wind and shear forces.

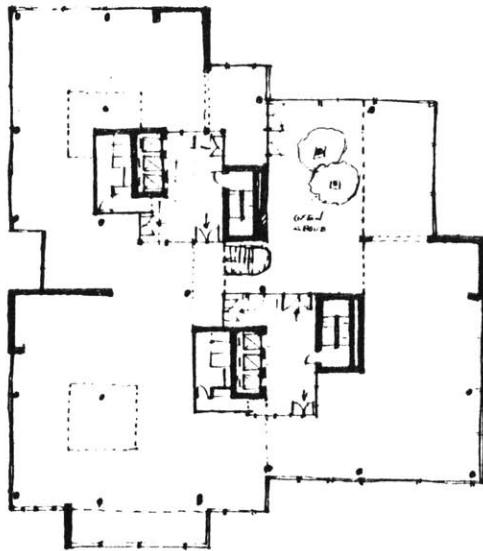
PUBLIC SPACE

As previously mentioned, the public space is generated between the service core elements. By splitting the service core elements, it allows a place for the creation of public space within a three story cluster. The advantage to using communicating floors is that, the public space created can acquire vertical dimension and provide access to second and third levels via a public stair that does not have to be fire enclosed. Thus, there is potential for social interaction and escape from the immediate confines of the office. The public space is seen as similar to a small three story atrium or light court, where a variety of

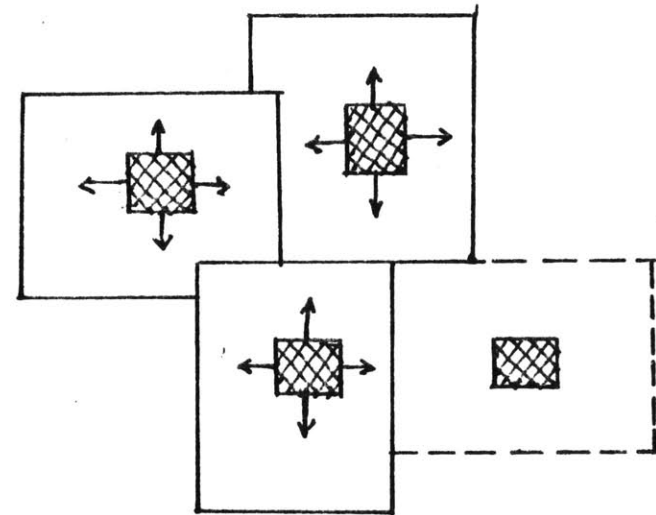


Federal Reserve Bank
H. Stubbins Architect

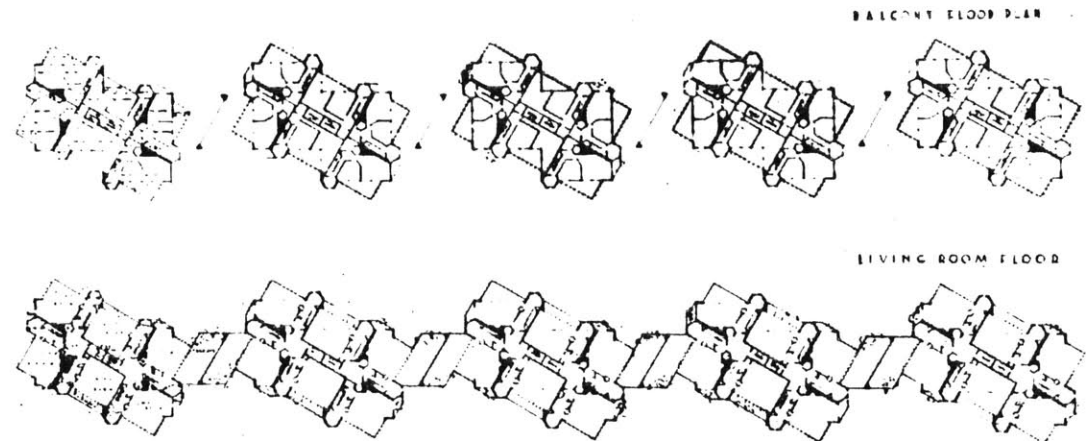
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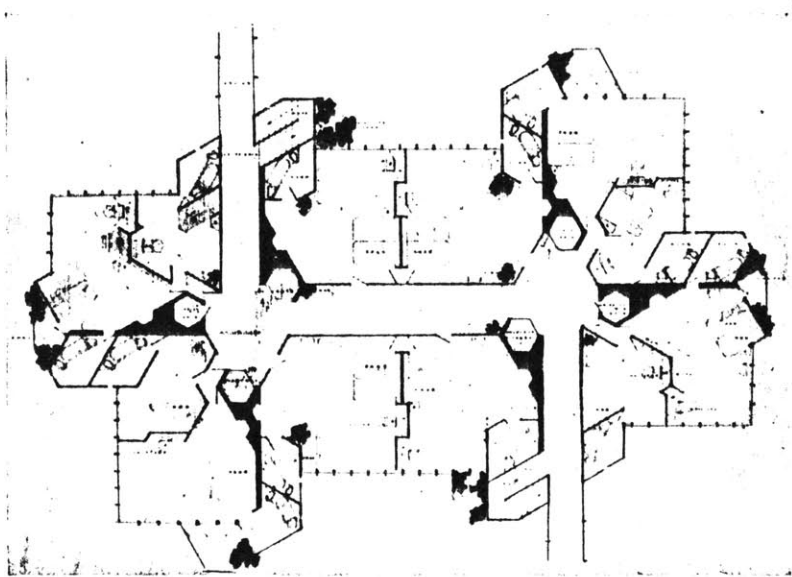
Core Elements To Close
Together - Unusable Central
Space



Potential for Expansion



Grouped Towers
For Chicago
F.L. Wright Architect

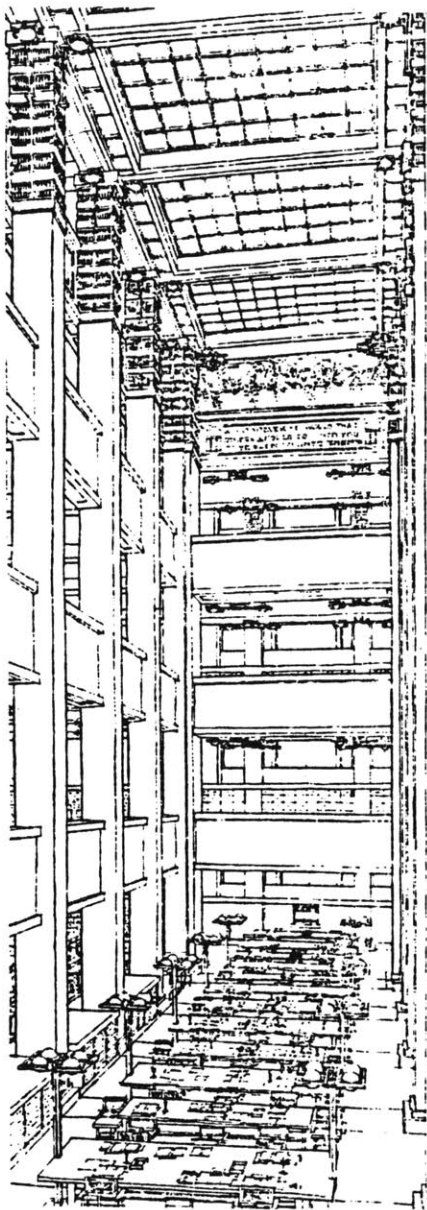


Additive Core Organization
For Tall Buildings
F.L. Wright Architect

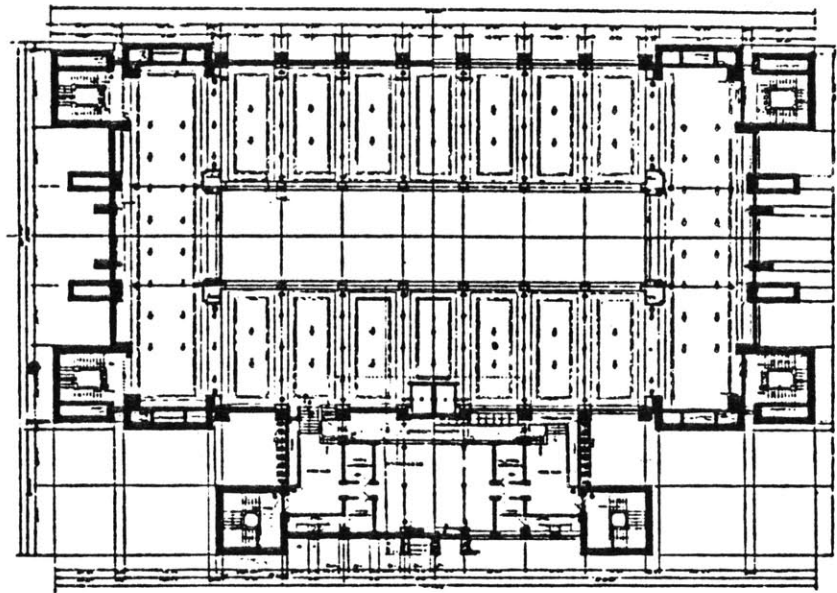


Grouped Towers
For Chicago
F.L. Wright

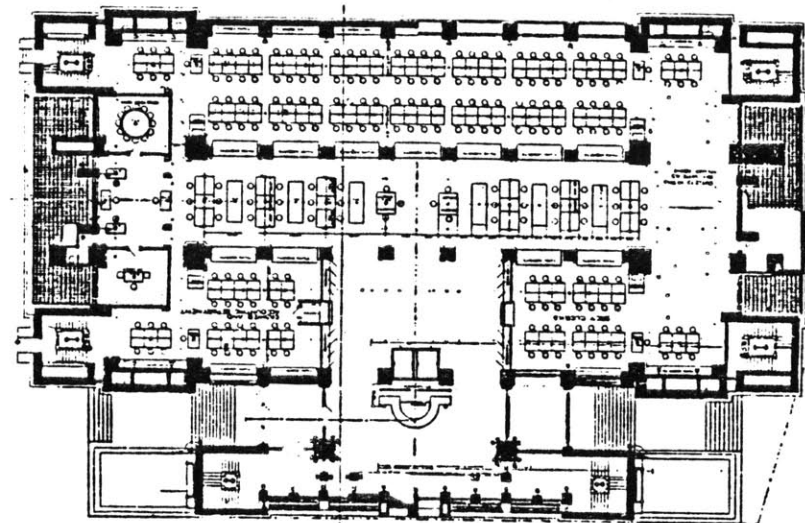




Larkin Building
F.L. Wright Architect



Typical office floor

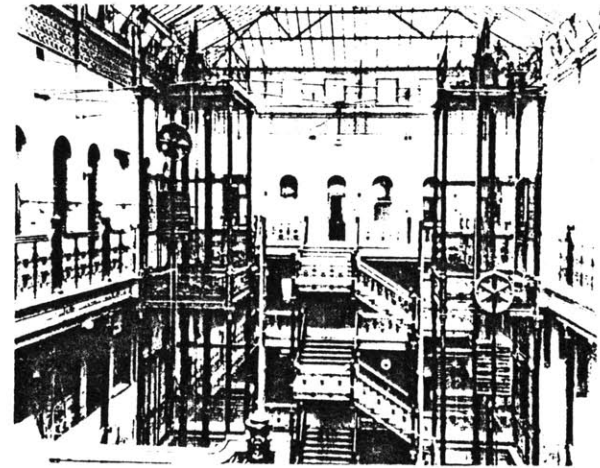


First floor plan

activities can occur. The public space is capable of sustaining a number of possible amenities ranging from cafeterias, to lounges, to greenhouses, to a specific function that acts as an amenity, not necessarily related to office use directly, but may be seen as a means of bringing some sense of city life into the upper reaches of a tall building. Hopefully, creating a heightened sense of urbanity. At the same time, the public space might be occupied on the first level by a single client, who leases an entire floor. The openings in the vertical dimension allow the two levels above to look down into the space at the first level. Social interaction is still possible when people are able to see each other working and moving on several levels, rather than, horizontally on a single level.

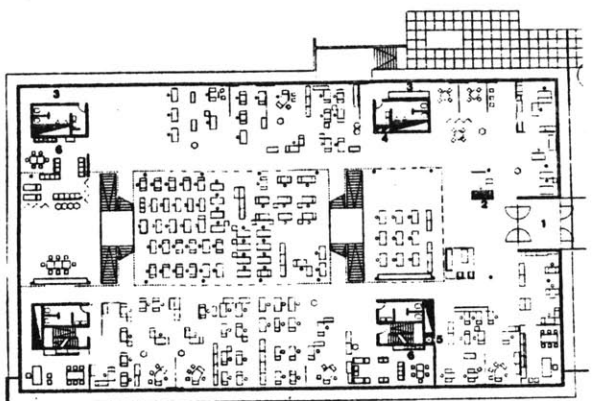
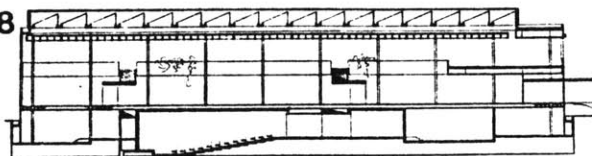
PUBLIC SPACE EXAMPLES

The Larkin Building by F.L. Wright, although not a high rise, was an example of how a concern for certain social relationships could be translated into physical form. Wright creates a large four story high central space with administration occupying the lowest level and clerical staff occupying the levels above, surrounding a central light court. In Wright's building, a social center is located on the top floor, for the use of all employees. The Larkin Building is perhaps one of the first examples of communicating floors used in the work place. Other buildings, at that time, had large public atriums with circulation in them, such as the Bradbury Building in Los Angeles, or the Rookery

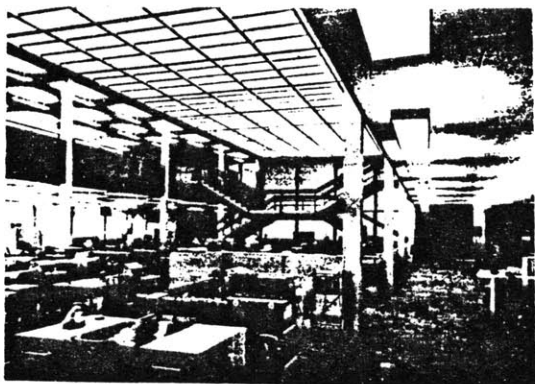


Bradbury Building
G.H. Wyman

28



Boehringer & Sohne Building
Siegel & Wonneberg Architects



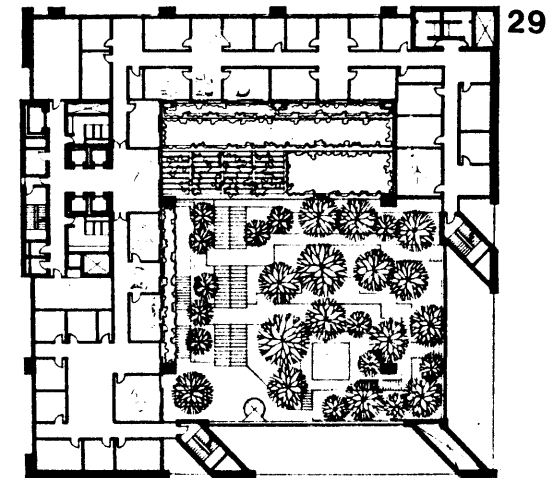
Building in Chicago, but never small scaled "courts," as part of the office working environment itself.

Another example, of a building that uses communicating floors as a means of increasing spatial variety and social interaction within the office, is the administration building for Boehringer and Sohne Company. The building is located in Mannheim, Germany and was designed by architects Siegel and Wonneberg. In this building, the offices are organized around a two story floor opening, connected by two monumental stairways. Core elements have been separated and located near the four corners of the building, to provide stiffening to enable the building to resist wind and shear.⁵ Although, there is no clearly demarcated public space in the plan, the potential for it to occur in this scheme, is much greater than in a centralized core organization. If the potential for public space is to happen, then it must happen within the confines of the office itself. This is a different attitude than what happens in what are generally regarded as successful examples of including public space in building such as the Ford Foundation Building in New York, and the Deer Building in Moline. Both buildings are by the architects Roche and Dinkeloo. In these two examples, a large public space is created and filled with a picturesque arrangements of trees and plants with staggered granite slabs defining floor paths. Offices are arranged rectilinearly around the public space. The problem with this kind of organization is that the zone between garden and court is to defined, to abrupt in transition. Consequently, the public space becomes a place into which one looks and through which one moves, but there are in it no places to be or occupy. It has been compared by one writer, commenting

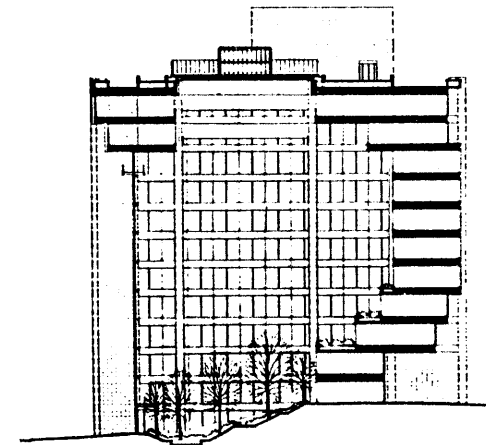
on the parallel to classic Italian urban living - where individuals who live in small apartments could escape into a grandes piazza in order to socialize in the presence of light and air. However, the garden in Deer's or Ford's public space are not piazzas, nor are they the right scale to encourage the kind of socialization they had intended. Instead, employees tend to feel a sense of being put on display.⁶

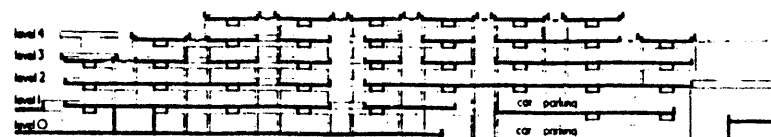
A final example, worth noting that successfully manages to incorporate public space in the building that is in keeping with the kind of attitudes possible in a tall building is Herman Hertzberger's Centraal Beheer Office Building in Holland, built in 1972. Although, this building is not a high rise, it has managed to accomplish and integration of small public spaces within office work places; creating a unique social statement about the nature of the work place. The building is born out of a concern for how people work and occupy offices. It is necessary to understand what those social attitudes are; how they work; and how they have been applied to this building, before drawing parallels for how a similar social concept might be incorporated into a tall building.

Centraal Beheer is essentially a series of aggregated cells built up within a strong, well defined structural system, which acts to define the circulation around the work "cells". Hertzberger uses a variety of enclosure techniques to provide both openness and privacy. As an example, low partitions are used in the coffee bar areas to provide the most opportunity for social contact, while full height movable partitions can be used to close off more private offices or conference areas. The predominate material in Centraal Beheer is concrete block,

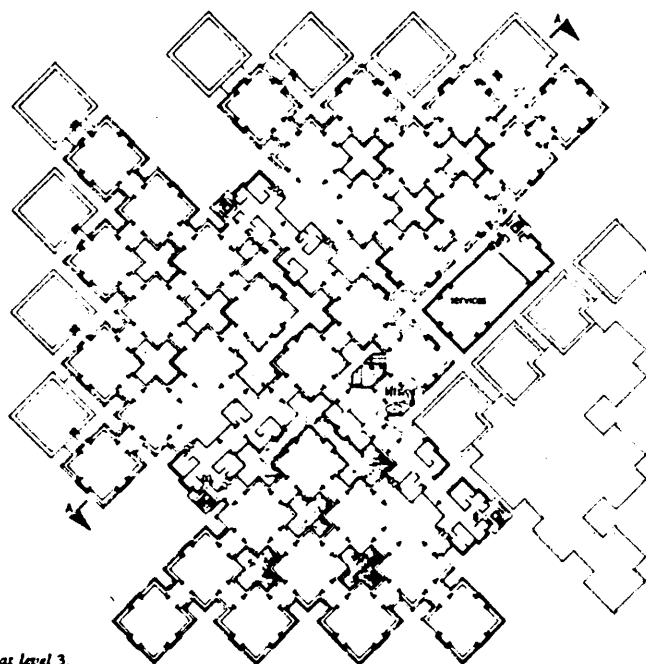


Ford Foundation Building
New York

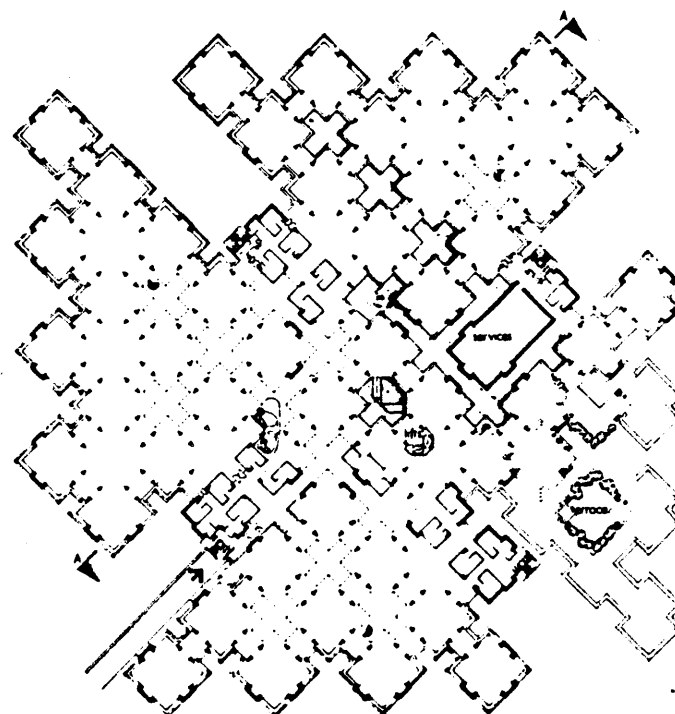




Section AA showing vertical penetration of space in both central space and office quadrants.



Plan at level 3.



Plan at level 2.

Centraal Beheer Office Building
H. Hertzberger Architect

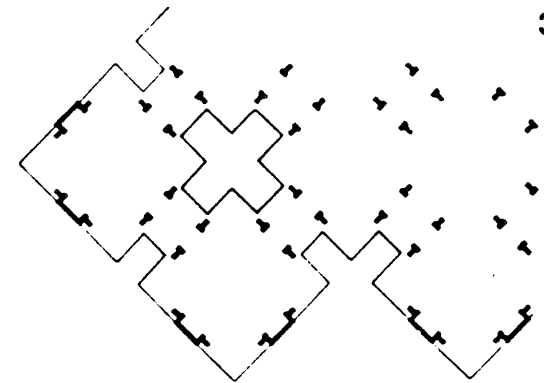
which gives the building an unfinished quality to provoke the users to add their own contributions to their work areas.

The main circulation path containing entrances, information desk, coffee bars, escalators, and similar public functions, runs through the four quadrants of the building. The North and East quadrants were designed to house offices, the South was planned as rental space, and the West to house facilities like restaurants, nurseries, reading rooms, library, etc. The range of activities which occur in Centraal Beheer attempt to provide some continuity between types of uses which are often artificially separated in the work place. The individual work stations open onto the public circulation area, to create a kind of urban street within the building. Furthermore, Hertzberger creates a variety of definition by designing specific informal gathering places for social contact, such as coffee bars, transitional spaces, and a general range of places to be, that give Centraal Beheer a unique social dimension not found in most large office buildings. Hertzberger writes:

The openness is intended to contribute to the reconciliation of building and city, public and private. Mother and children may have a walk in the building to see where father is working and what he is doing. They may have a drink together, or, as many families do, lunch in the restaurant.⁷

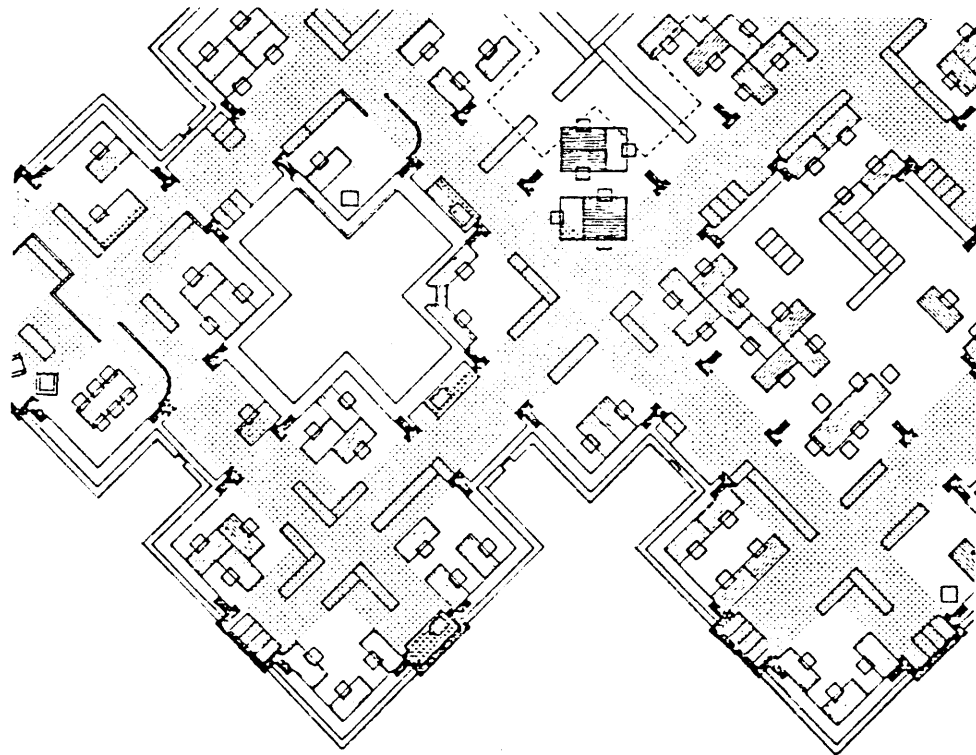
At this point, some discussion is necessary on the nature of the public space that can be included in the alternative service core organization. The references to such buildings as the Larkin Building, the Boehringer and Sohne Building, and the Centraal Beheer Building, are clearly not high rise buildings, nor is the kind of spatial attitude

31



Centraal Beheer Office Building
H. Hertzberger Architect

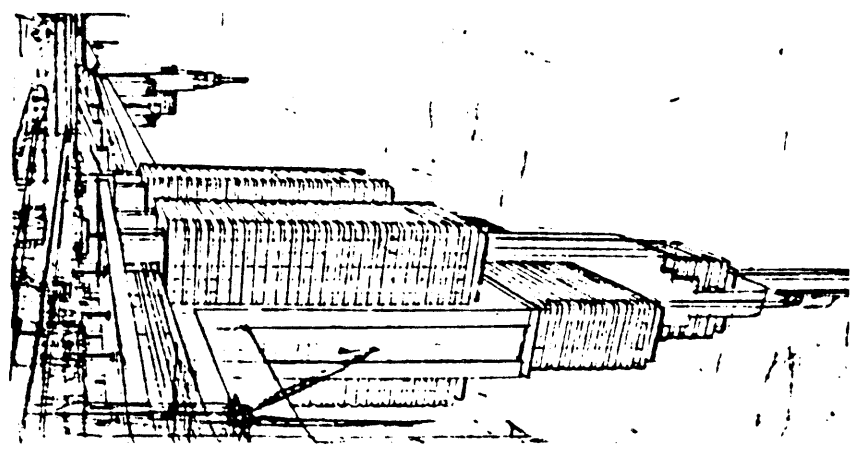
they generate found in tall buildings. The reason for selecting these references is that they convey the spirit or attitude of the kind of spatial variety and social consciousness not only possible, but necessary, in a tall building. A more detailed assessment of the merits of these kinds of references and their implications on a vertical morphology, are discussed in further detail in the conclusion section of this thesis.



Centraal Beheer Office Building
H. Hertzberger Architect

1. "F.L. Wright's Concrete and Copper Skyscraper on the Prairie for H.C. Price Co.," Architectural Form, XCVIII, May 1953, p. 98.
 2. Ibid.
 3. Joedicke, J. Office Buildings. New York: Frederick Praeger, Publisher. 1962, p. 35.
 4. Massachusetts State Building Code Commission, State of Massachusetts, 1982, Ed., p. 231.
 5. Ibid. Office Building, p. 208.
 6. Hall, E. The Fourth Dimension in Architecture. New Mexico: Sunstone Press, 1975, p. 22.
 7. Hertzberger, "Looking for the Beach Under the Pavement," RIBA Journal, Aug. 1971, p. 333.
-

**DESIGN
ILLUSTRATION**



ing By
Ferriss

This section presents a design illustration of how the concept of communicating floors works with the notion of decentralized or split service cores. The design footprint is based on a specific site situation explained later in the design proposal section of this thesis. The illustration is developed to show how a particular organizational concept might be applied in a typical high rise building.

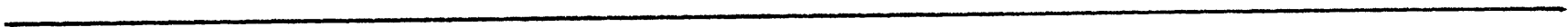
The design illustrated on the following pages develops two service cores, which contain elevators, restrooms, and mechanical chases. The service cores are enclosed from the lease space by glass to provide smoke protection as required by the building codes, hence, they also provide the access into any specific lease space. Within the leasable space, a three story tall opening in the floor provides both light and air into the central portion of the building. A monumental stair within the space provides access to any of the three levels within the cluster. A tall building can be generated by a stacking of these three story clusters - this discussion is confined to specifically examining one such "typical" cluster. The lease space contains the provisions for opening floors up within a given lease space, in the event that a particular client wished to increase the potential for access and communication within the privacy of his or her own lease space. This access can be made with removable floor panels and the addition of a

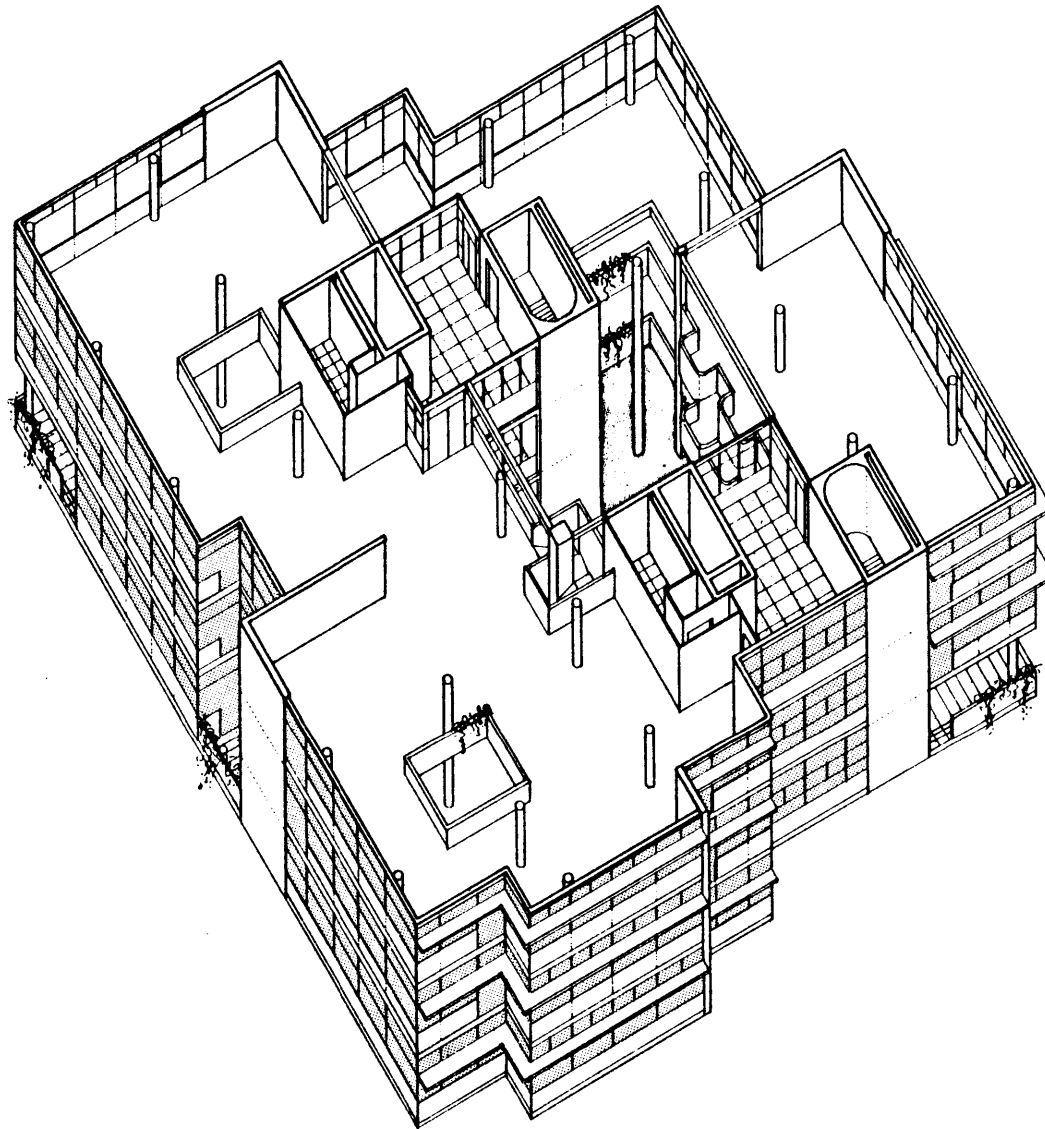
private stairway to connect the new floors. The central three story space is seen as being open enough to allow workers to station their work places at the edge of the central court, so they might have views up and down the cluster. Workers would also have the potential to personalize their surroundings. The central "court" space would be lighted above by incandescent lights and from the sides, by natural light. In this scheme, all windows would be operable to increase air and cross ventilation. The structural system consist of a flat slab supported by columns on a 24 foot grid. A nine foot floor to ceiling dimension is used between floors. Vertical core elements add stiffness against wind and shear, as well as provide a vertical element to the exterior facades.

In this scheme, the placement of the service core elements, is in part, determined by the amount of space that can be created between the service cores. In Stubbins's Federal Reserve Bank in Boston, the service core elements are placed at the far ends of the building to provide a primary use space in between. In this design alternative, the service core elements are placed far enough apart so that there is usable lease space between, as well as a certain amount of overlap as it relates to the adjacent core elements. In this manner, there exist the potential to create usable, small scaled public spaces between service core elements. If the service core elements should be placed to close to each other, obviously, this reduces the amount of usable space between core elements. Each service core elements exerts its own sphere of influence around itself, to offer the most flexibility in access to the lease space (note the Price Tower as an example of a single small

core). The design is capable of allowing a certain amount of square footage to be used as commercial or non-office function to give workers, of this three story cluster, some public amenity. This would enhance the idea of urbanity in the air, by bringing some sense of city life into the upper reaches of a tall building. These potential amenities should happen adjacent to the central "court" space, so that they become visibly and physically linked with the rest of the cluster. In much the same way, Hertzberger brings a variety of functions into his Centraal Beheer Building in Holland.

Axometric of
Three Story Cluster

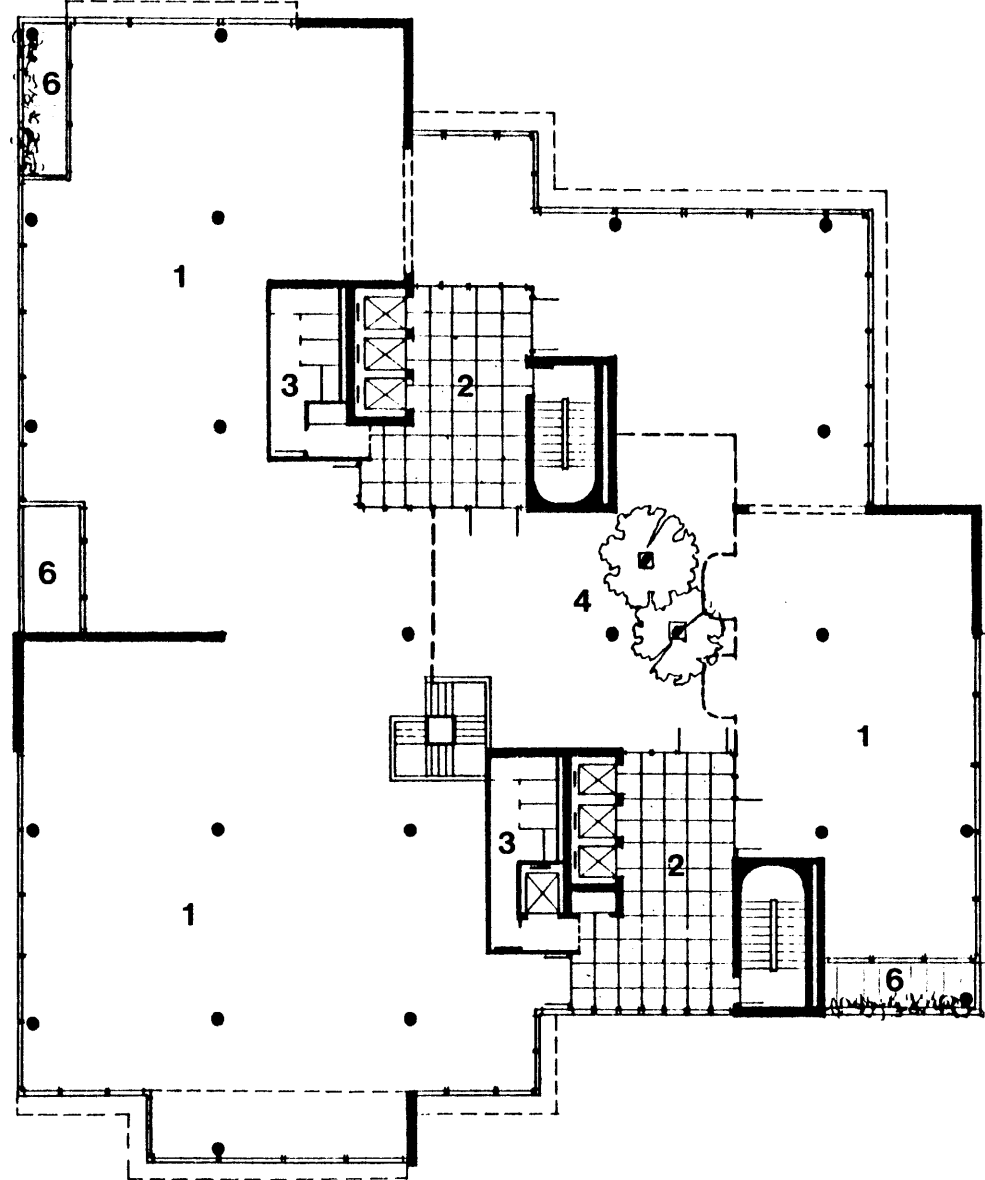




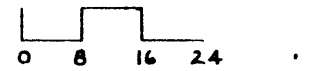
AXONOMETRIC

First Floor of
Three Story Cluster

1. Lease Space
 2. Service Core
 3. Restroom
 4. Public Space
 5. Open Below
 6. Deck
-

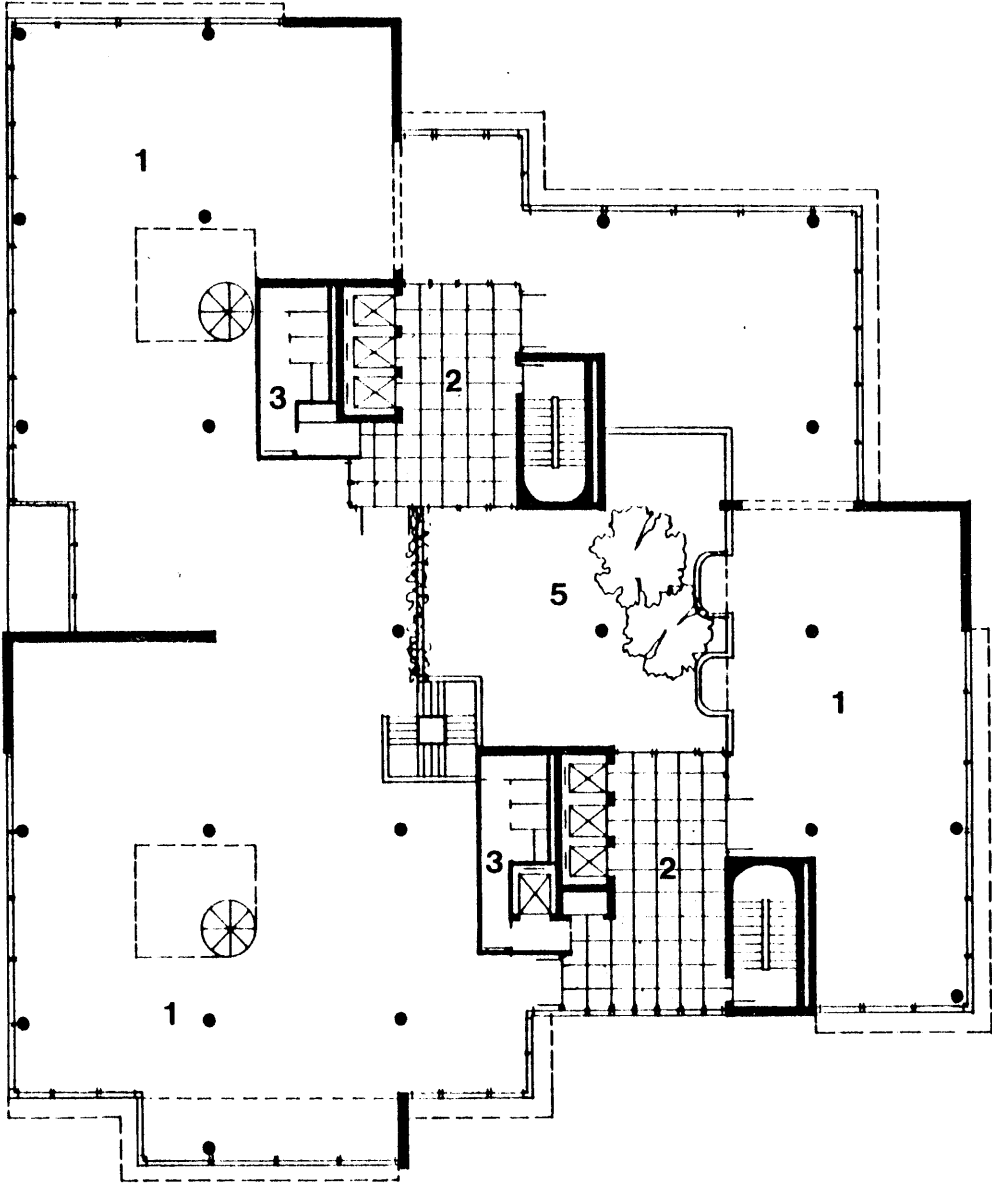


PLAN 1

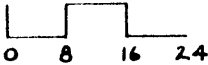


Second Floor of
Three Story Cluster

1. Lease Space
 2. Service Core
 3. Restroom
 4. Public Space
 5. Open Below
 6. Deck
-

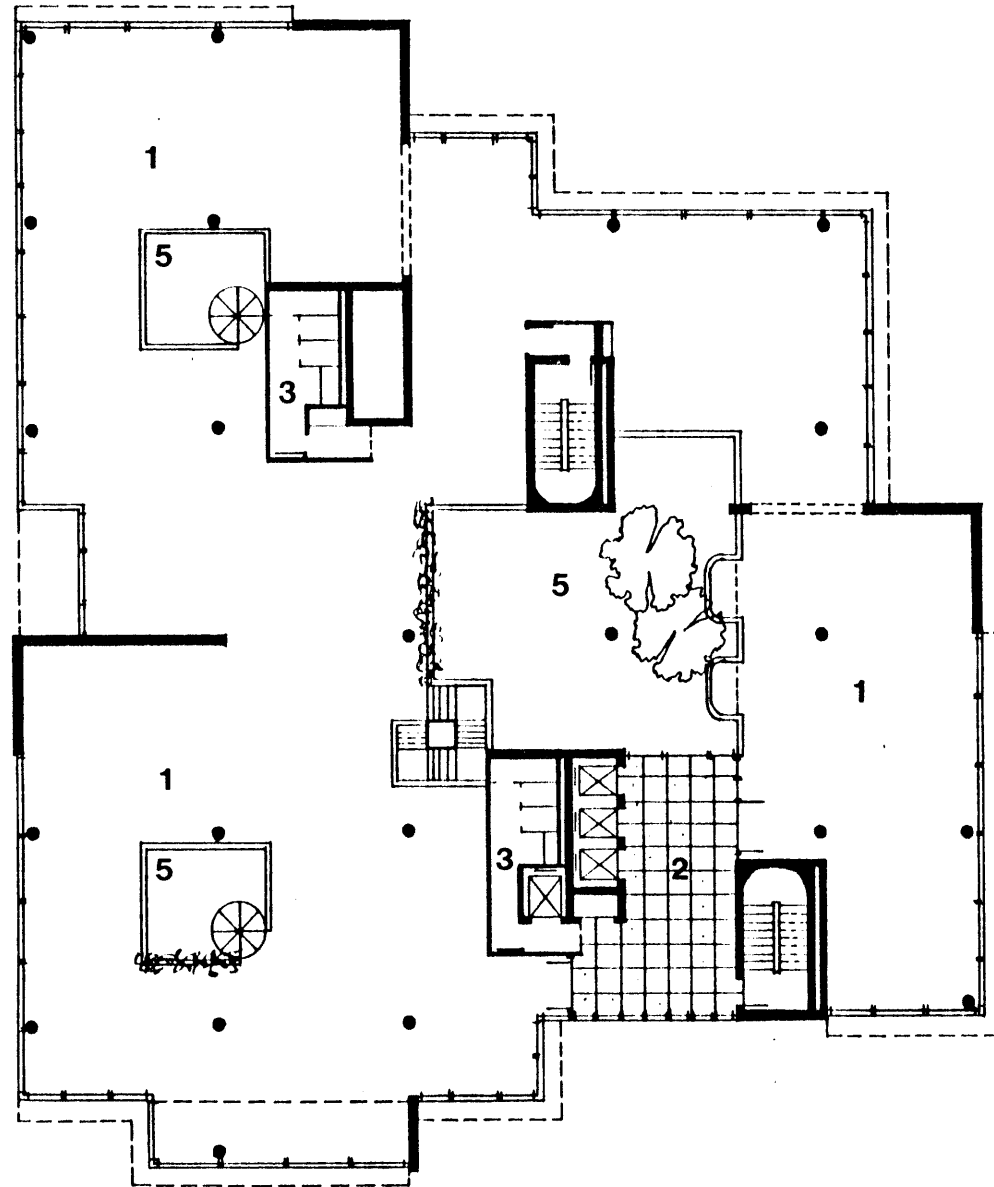


PLAN 2

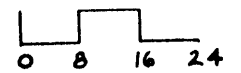


Third Floor of
Three Story Cluster

1. Lease Space
 2. Service Core
 3. Restroom
 4. Public Space
 5. Open Below
 6. Deck
-

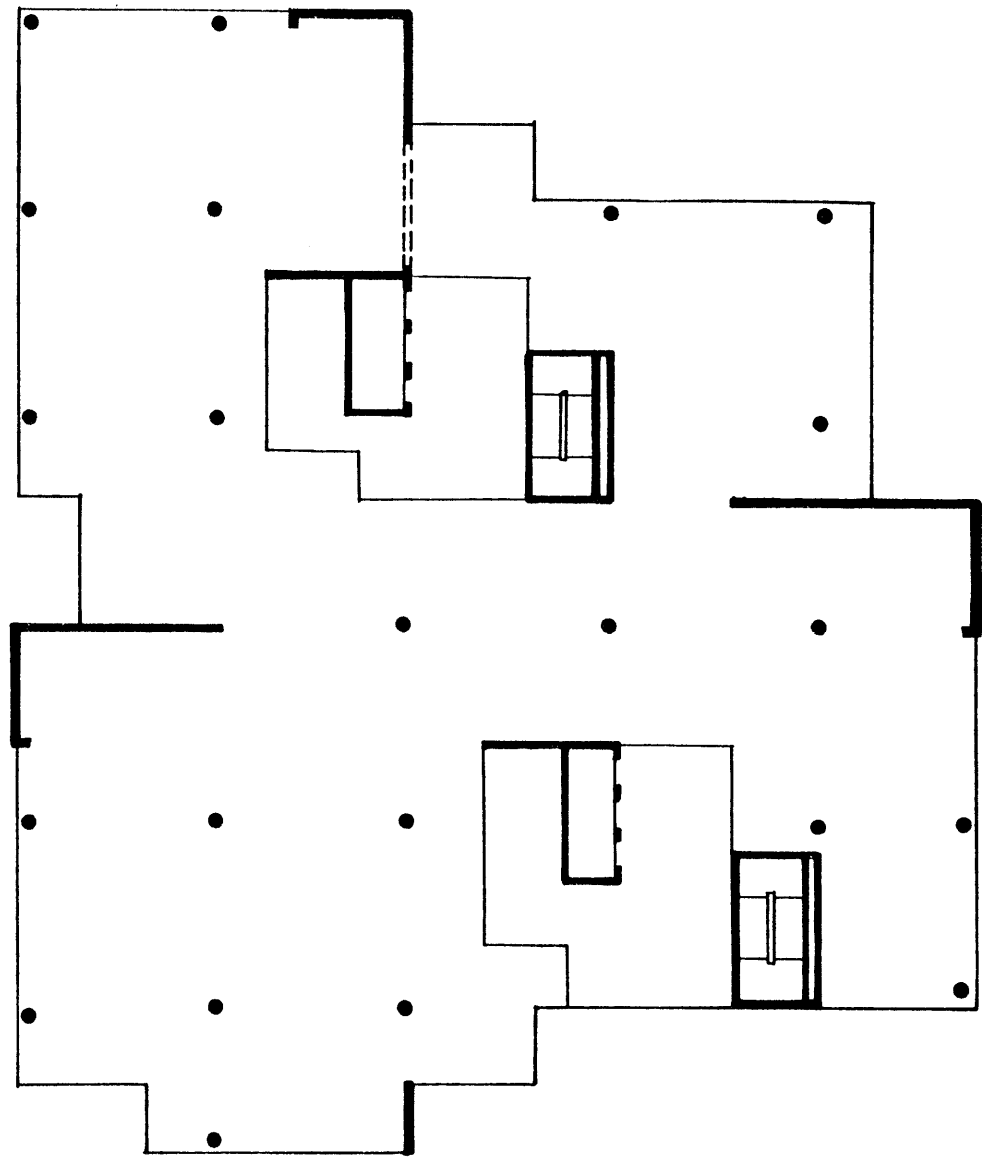


PLAN 3



Core Walls of
Three Story Cluster



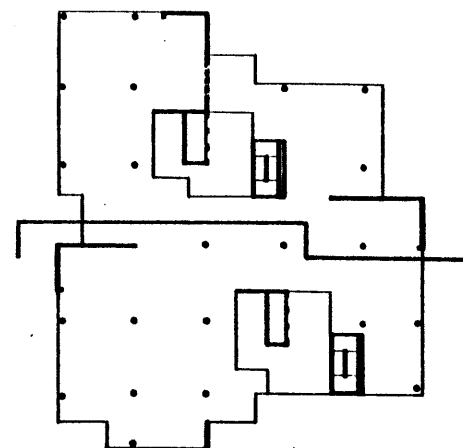
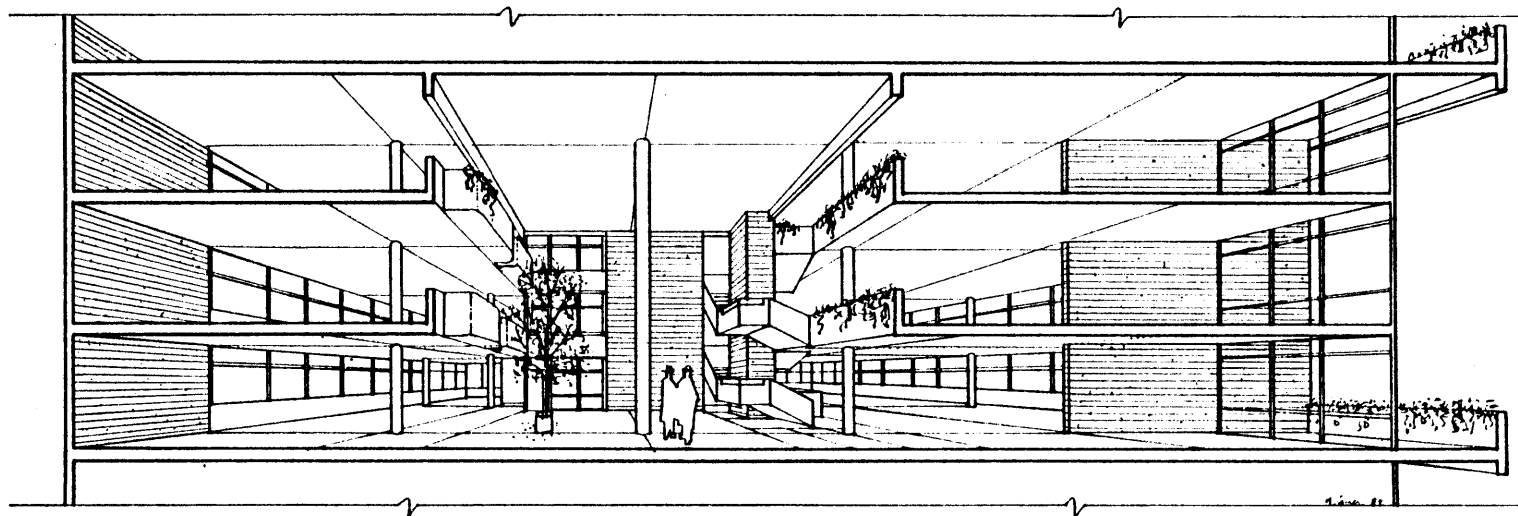


CORE WALLS



Section of Three
Story Cluster



**SECTION**

DESIGN PROPOSAL

"It must be tall, every inch of it tall. The force and power of altitude must be in it, the glory and pride of exultation must be in it. It must be every inch a proud and soaring thing, rising in sheer exultation that from bottom to top it is a unit without a single dissenting line - that it is new, the unexpected, the eloquent peroration of most bald, most sinister, most forbidding conditions."

Louis Sullivan
"The Tall Office Building
Artistically Considered"
1896

This section of the thesis, focuses on a design proposal, using the decentralized service core organization of communicating floors, for a specific site in downtown Boston. The reason for proposing a design on a specific site, is to test the idea of an alternative service core organization, to the scale of an actual building footprint on an actual piece of property. For purposes of this thesis, it is intended as a pedagogical exercise to allow the designer to explore a wider range of issues likely to be encountered in a realistic, professional setting. This proposal, is only intended to give the reader some semblance of understanding of what the project might look like and approximately how it fits into the context of it's surroundings. It is not, of course, a complete presentation, for time constraints have dictated the number of issues that can be reasonably explored and addressed in one semester. The succeeding paragraphs and drawings will provide information on the kinds of issues explored and what the building might look like.

THE SITE

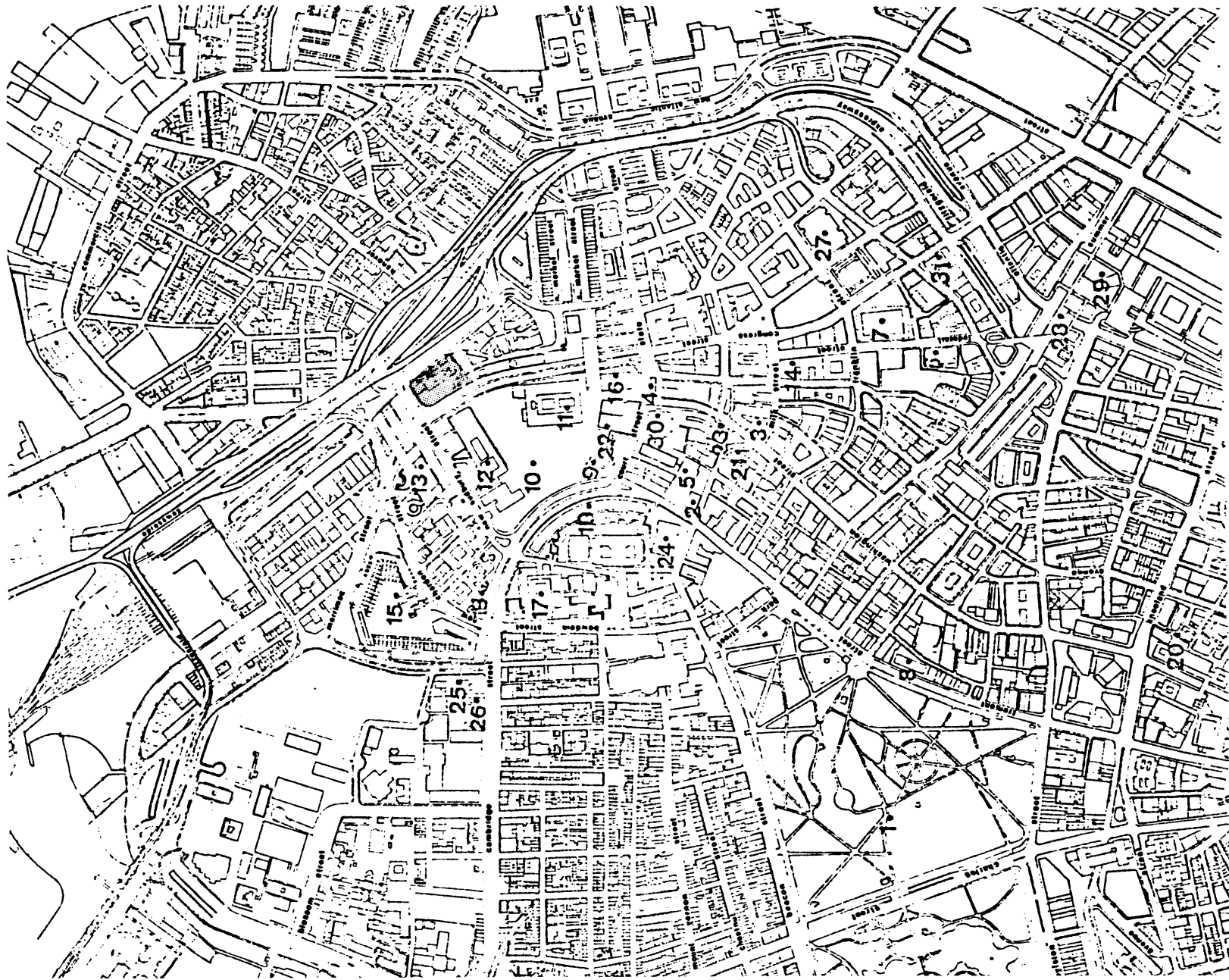
The site selected, is a piece of property on the edge of Boston's revitalized Faneuil Hall Market Place and across from the Boston City Hall. To the North, of the site, is the City Hall Garage and to the East is the elevated Southeast Expressway. To the South is the historic

Blackstone Block with Faneuil Hall Market Place just beyond that. The Blackstone Block is the location of the famous outdoor Haymarket. The site is a block on the corner of New Sudbury Street and New Congress Street. Currently, the site is used as a parking lot for selected City Hall employees. Presently, the site (also known as Parcel 7) is zoned for commercial use and sits in the heart of downtown Boston. The site is located at the juncture between Government Center and the end of the business district, located just to the South of the site. Parcel Seven contains approximately 58,587 square feet. Two subway lines cut diagonally through the Northwest corner of the site. Currently, a subway station is located in approximately the middle of the site on the New Congress Street side. Consequently, there is a subway easement under the Northwest corner of the site.

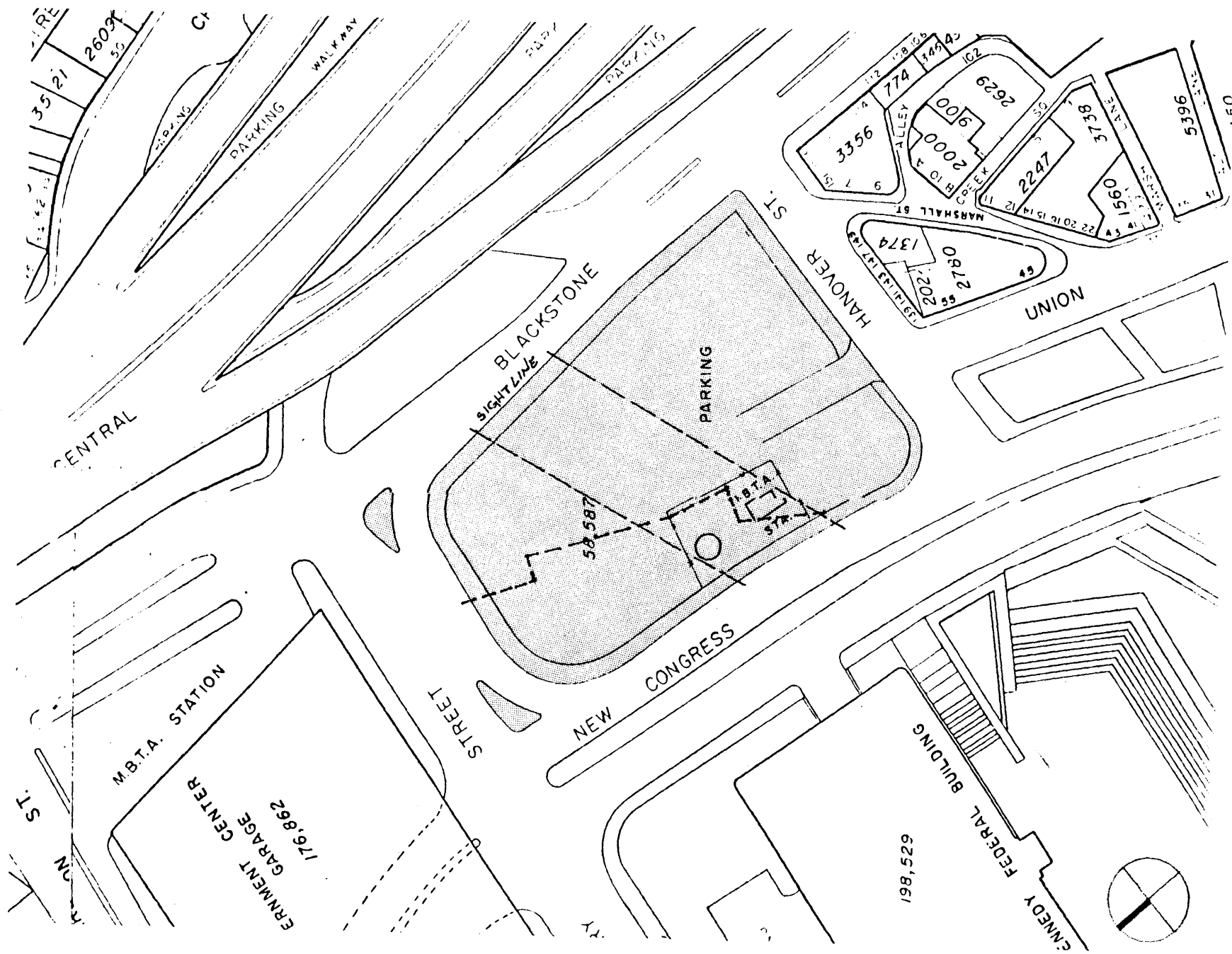
In addition to a subway easement, there exist an interesting visual easement. The city requires that it be possible to see the steeple of Old North Church from Tremont Street, which is just beyond the City Hall Plaza (18 feet higher in grade than Parcel 7). These sight lines cut right through the middle of Parcel 7. Thus, the sight lines dictate a great deal about the placement of a tall building. The other easement imposed by the city is a ten foot sidewalk requirement around the entire block.

THE PROJECT

The designed proposed, is a mixed use development with commercial, retail functions on the ground floor and office and business functions

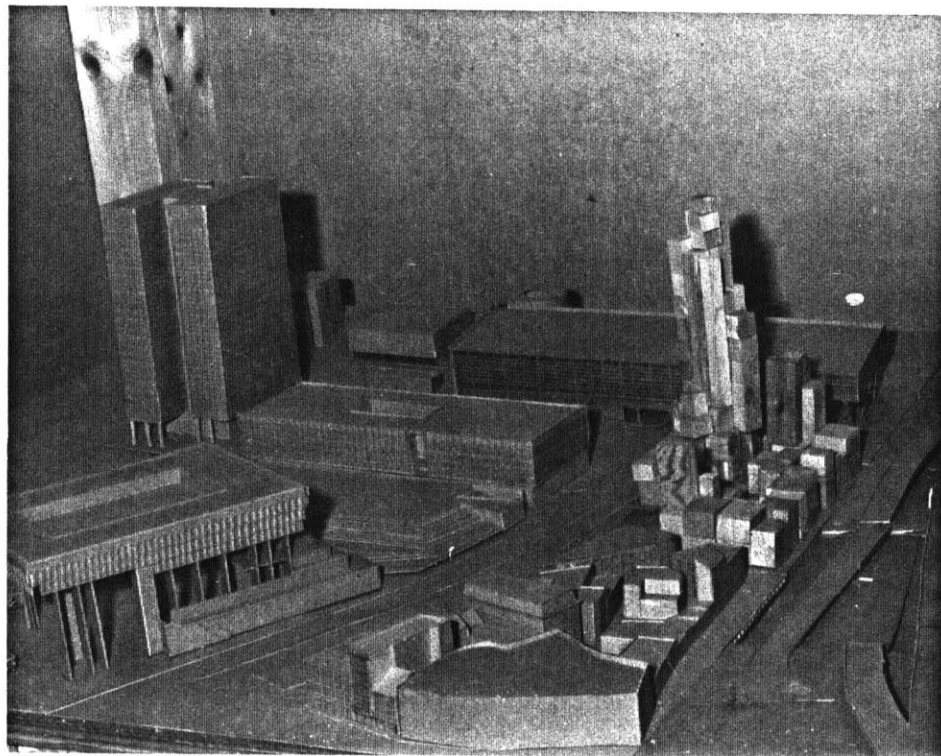


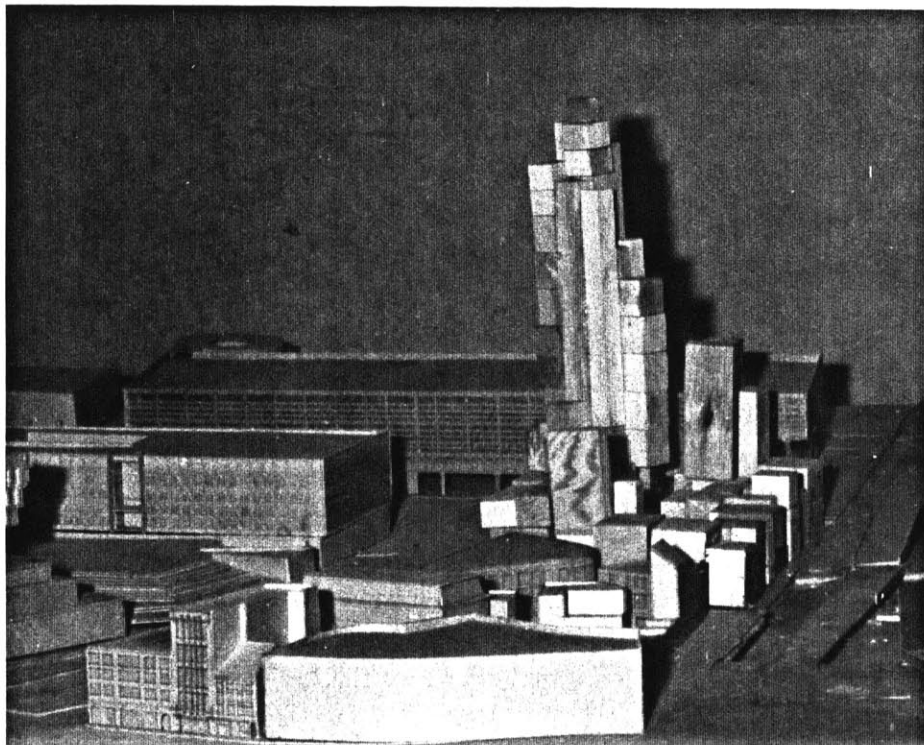




on the upper floors. The program is developed out of specific needs, for the site, as appropriate for a mixed use development. The site is organized with the tower located in the Northwest area of the site. This decision is based on the sight line easement and the feeling that a tall building should be located as far away from the Blackstone Block as possible. The Blackstone Block, apart from it's historical character, is a series of red brick buildings, mostly four to five stories tall with the Haymarket on the far East side of the Block. With the exception of the Tower, the rest of the project maintains a scale of approximately four to five stories. This is done, so that the project maintains a greater sense of continuity with the surrounding buildings, and to clear the sight line easement. The project, further maintains it's contextual associations, by continuing the axis and the pedestrian movement of New Congress Street into the site. This continuation of movement culminates in a courtyard, then allows people to move through the site, behind the Tower, northerly towards the City Hall Garage and the Boston Garden. In this manner, the project acts as a kind of urban link to connect two separated parts of the City; the Fanueil Hall, Blackstone Block, Government Center section, with the Boston Garden, North Station, Canel Street section. The present axis is lined with trees down New Congress Street to Fanueil Hall. This line of trees would be continued into the project and terminated at the end of the axis in the courtyard. The trees act as a soft buffer zone between the scale of the proposed project and the adjacent Blackstone Block, and the scale of the Government Center buildings.

Shops, restaurants, a small theatre, and other types of similar uses would comprise the ground floor functions. The Haymarket is continued into the project under a translucent roof to provide light and weather protection, while still retaining the sense of openness and visceral qualities that make it famous. The Haymarket currently operates on Blackstone Street, on the far East side of the Blackstone Block. The Haymarket would simply be continued down Blackstone Street and around the corner onto Hanover Street as part of the new project. This allows a continuity in use as well as in scale, between the proposed project and the Blackstone Block. A new subway station entrance would be included in approximately the same place it currently exist. The new station entrance would be on axis with the pedestrian movement of New Congress Street. The new station would be larger and more integrated with the proposed uses for the site, and would have large monumental stairs to take people below grade, yet still give them a sense of openness and participation with grade level activities. This proposal takes into account that below grade parking would be necessary on approximately 65 to 70 percent of the site (excluding the subway easement). However, the specific parking considerations and layout below grade were not within the time limits of this thesis. The materials for the project would be red masonry, similar to the surrounding context and Boston in general. Vertical circulation cores and exposed structure would be in light colored concrete similar to City Hall. Paving materials would be granite and red masonry pavers, also similar to the existing fabric of the City.





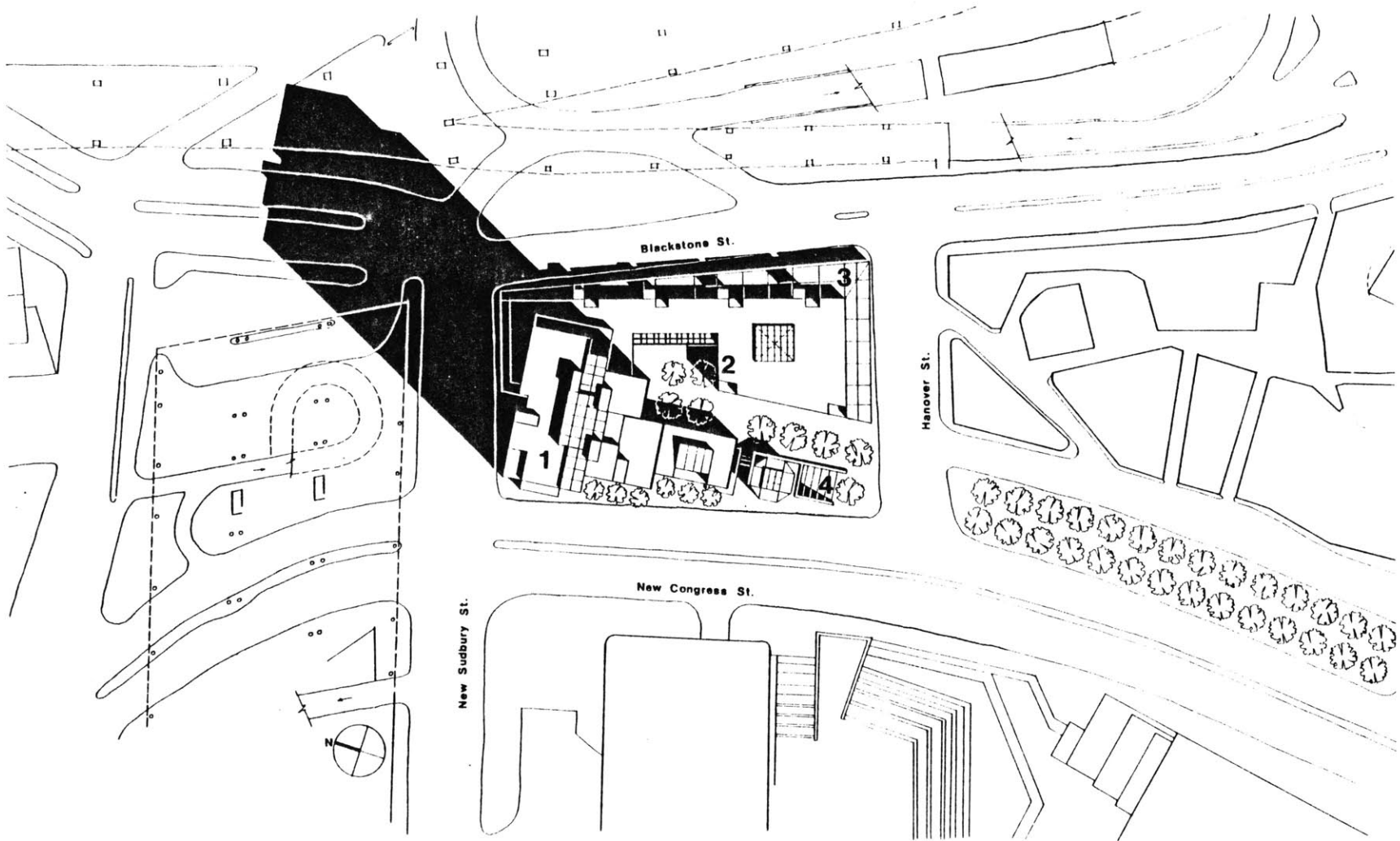
THE TOWER

Much about the quality of the interior space in the Tower has already been discussed in the previous section of this thesis. In regards to the specific site, the Tower occupies the major portion of space on the North side of the site. The Tower is rotated slightly, to take advantage of views and sunlight, and reinforce the axis of movement down New Congress Street on a larger urban scale. At ground level, the functions include mostly shops. The design intention is the first four to five stories of the entire site maintain a strong horizontal direction similar to the Blackstone Block. The lower portion of the Tower does this, but uses its service core elements and vertical wall piers to step up and over the horizontal fabric. All vertical elements in the Tower are concrete to reinforce the visual image of "stepping through" the horizontal fabric, in much the same way as the Boston City Hall does through a separation of masonry ground related forms and concrete forms above the masonry. Given, that a Tower by its vertical morphology, assumes an extraordinary object like quality, this then provides a certain opportunity to express differences between a horizontal world and a vertical one. Therefore, the Tower is clad in light colored granite panels with tinted colored glass. Concrete is used for the vertical elements and to articulate structural floor levels. This provides for an interesting facade play, between horizontal elements and vertical elements.

Site Plan

1. Tower
2. Low Rise Office
3. Market
4. Subway Entrance



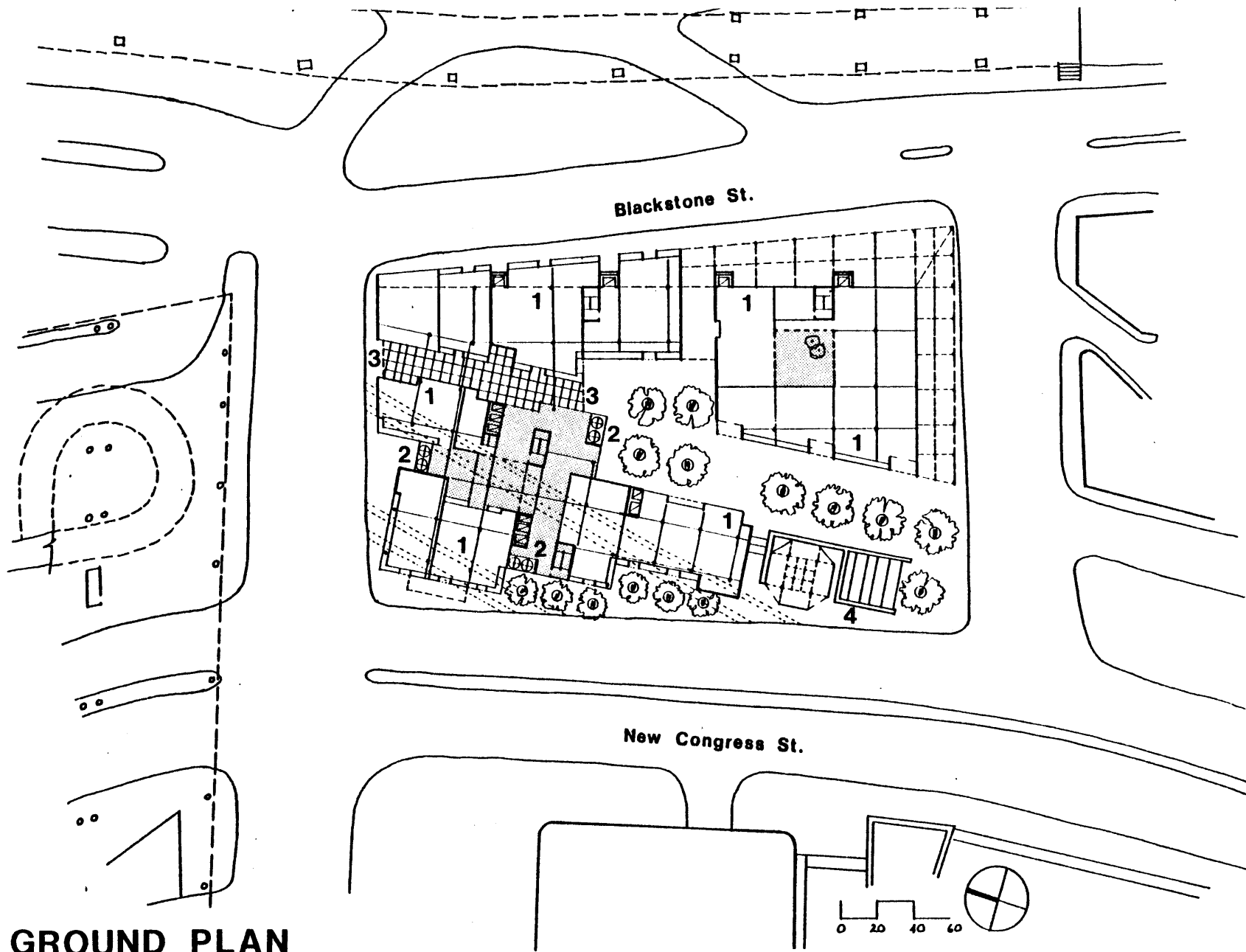


SITE PLAN

Ground Floor Plan

1. Retail
2. Tower Entrance
3. Passage Way
4. Subway Entrance

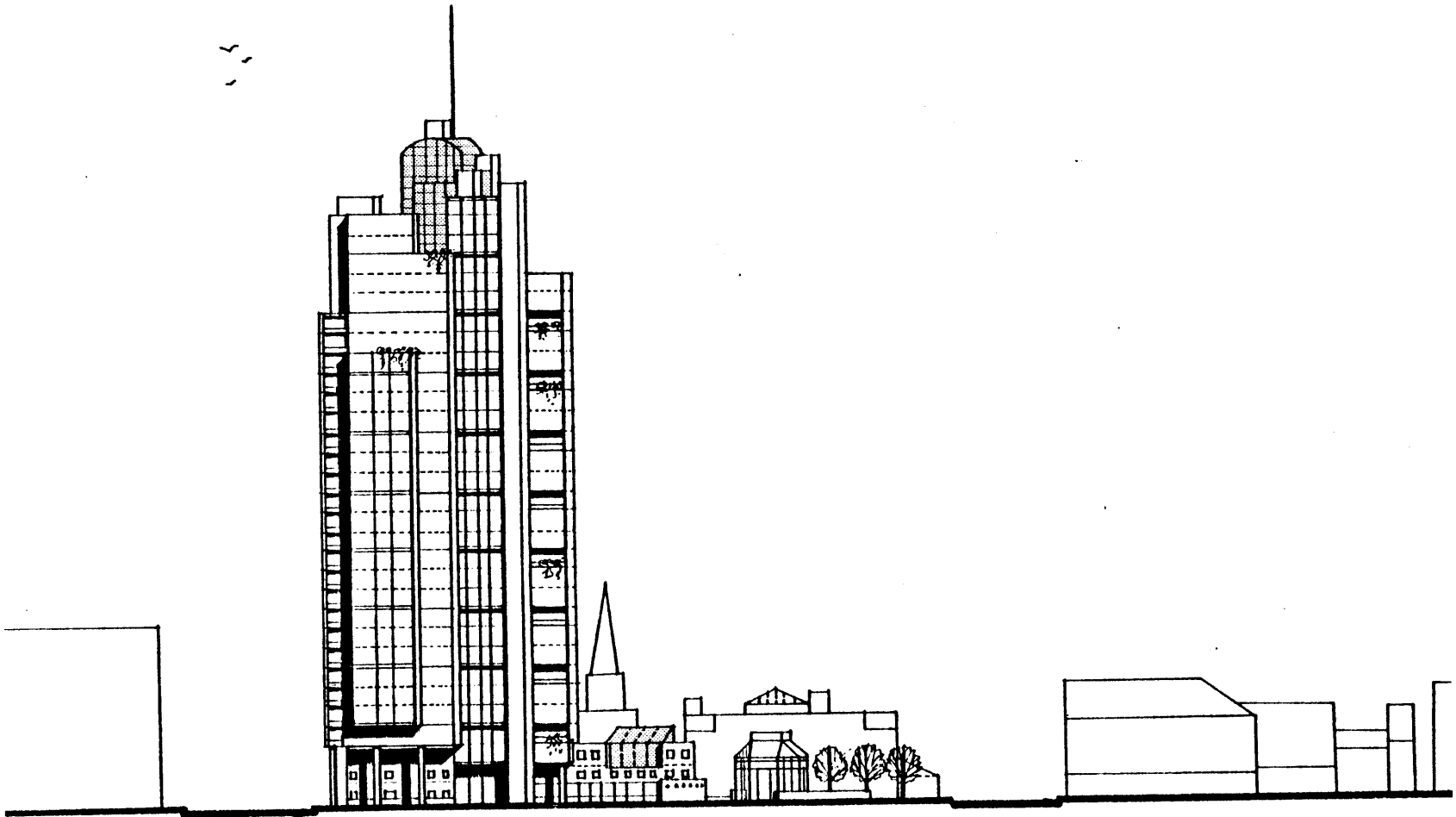




GROUND PLAN

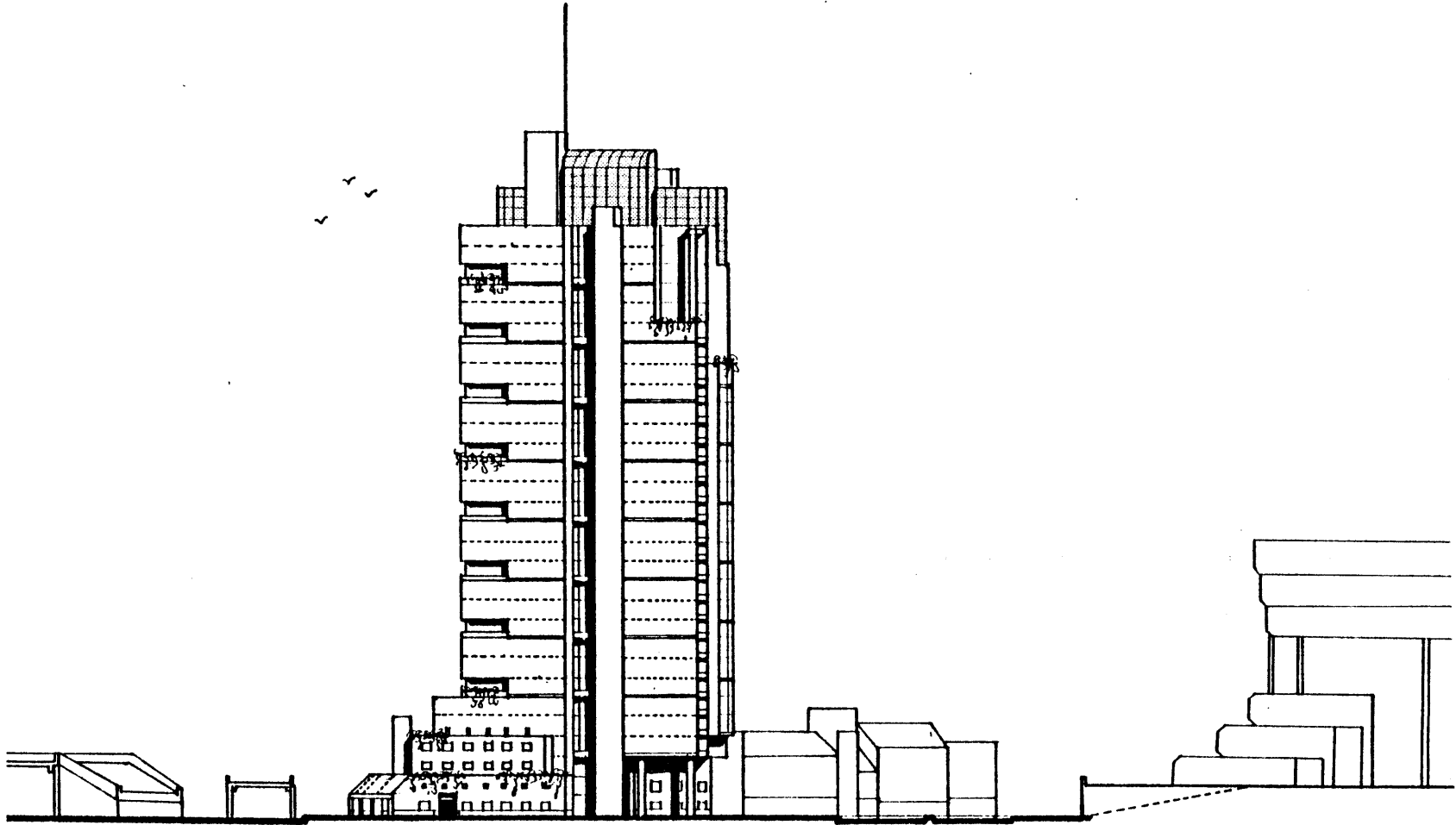
New Congress St.
Elevation



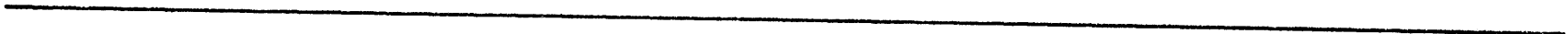
**ELEVATION**

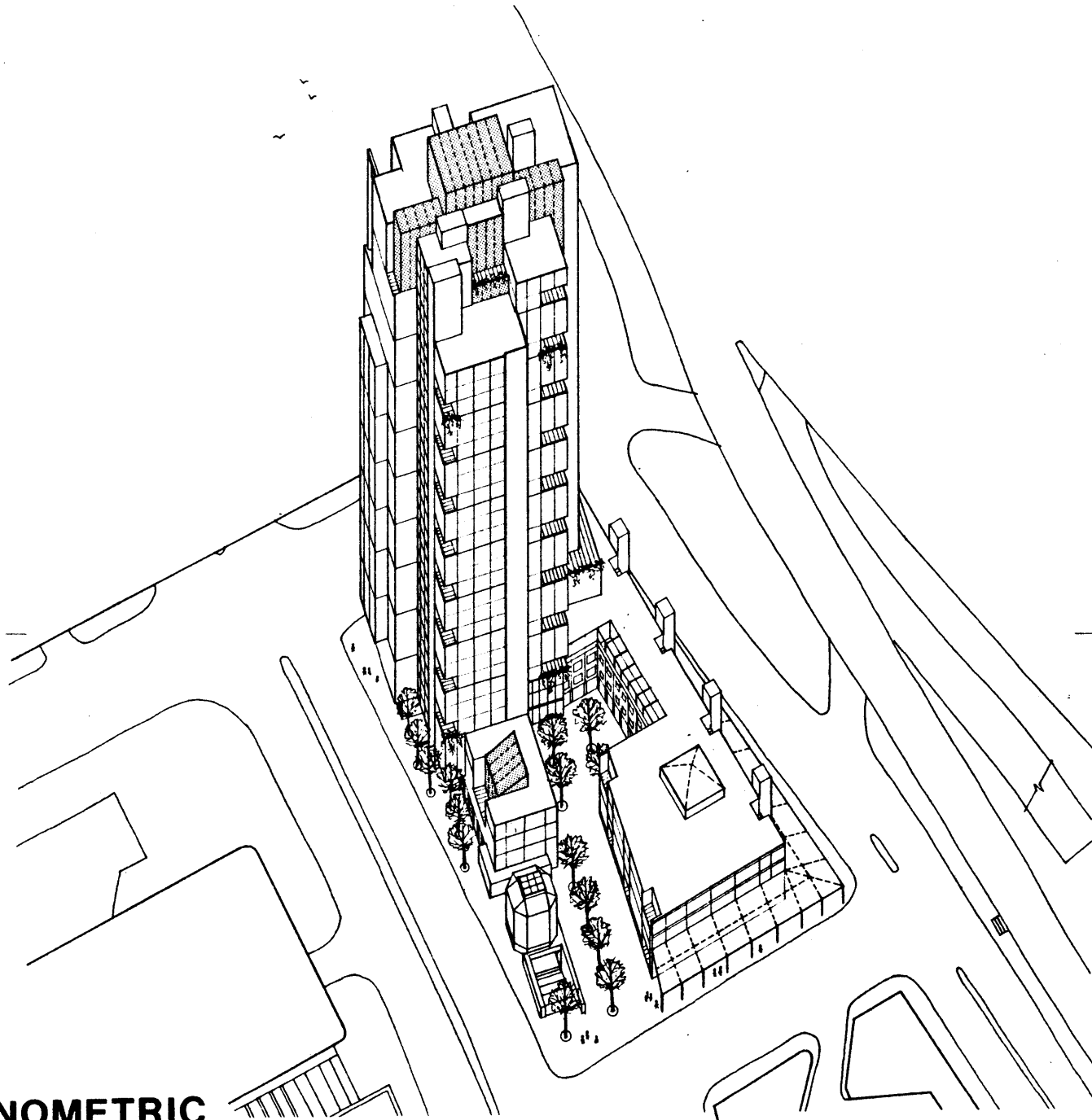
New Sudbury St.
Elevation



**ELEVATION**

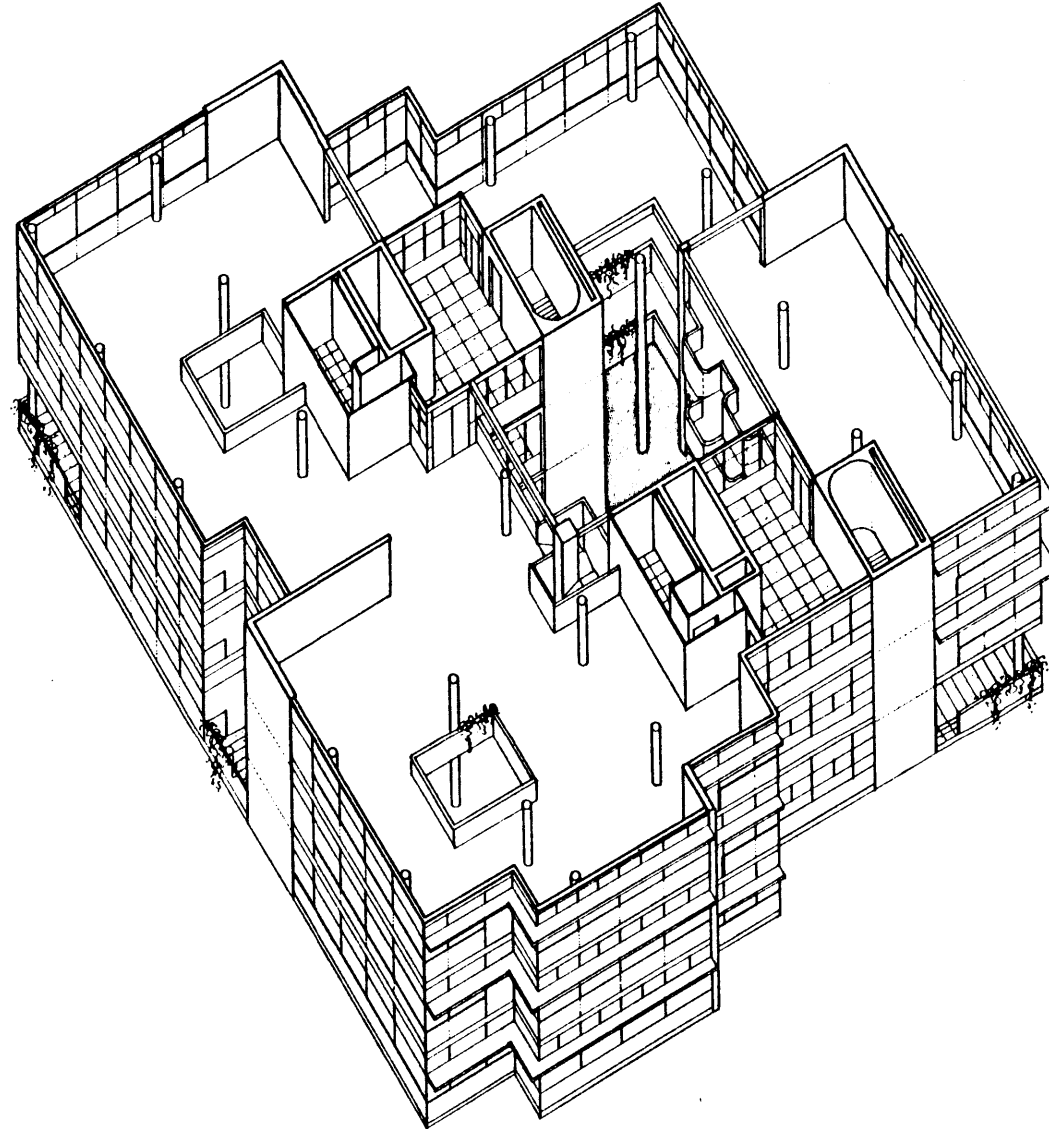
Axonometric Of
Proposed Design



**AXONOMETRIC**

Axonometric of
Three Story Cluster

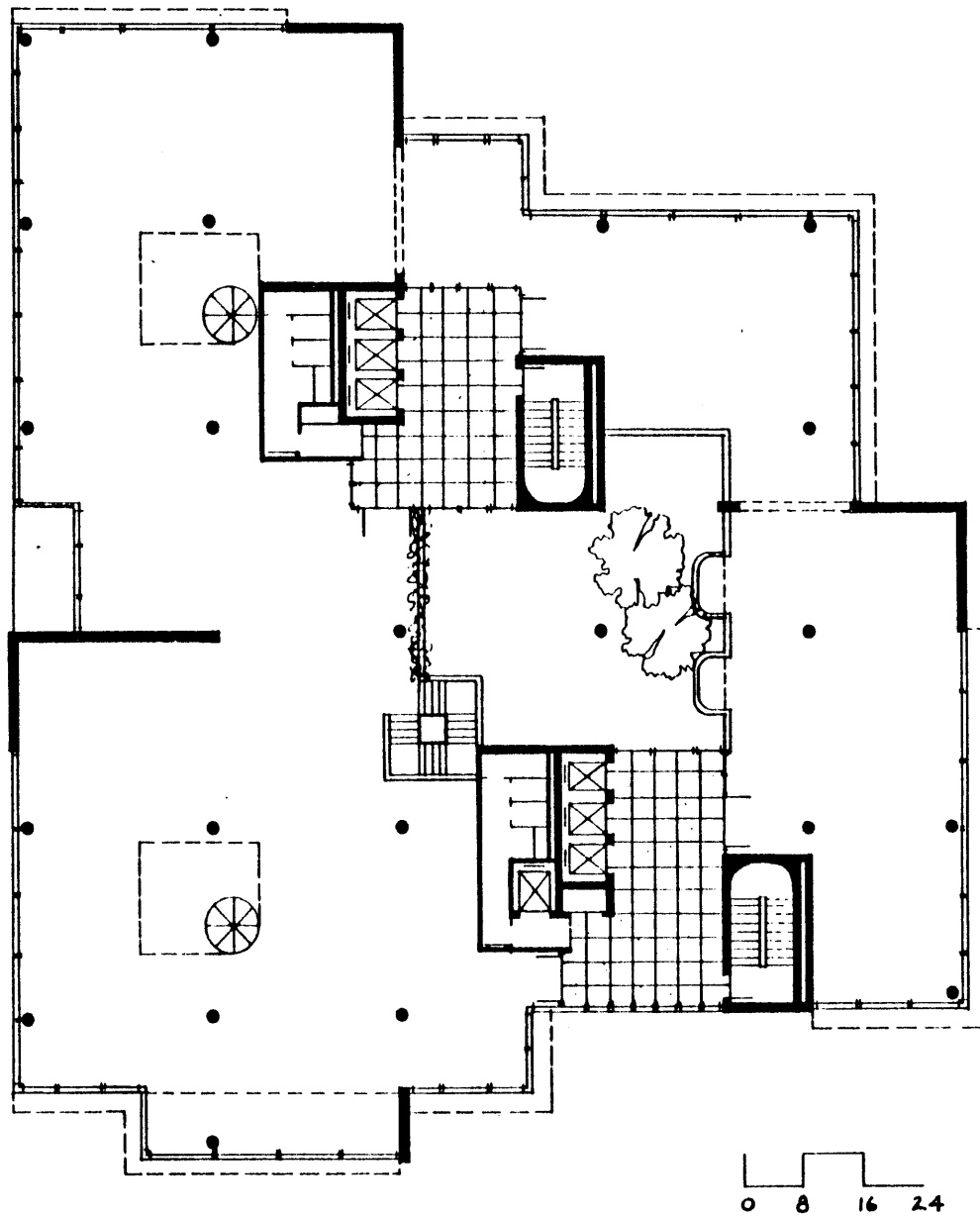




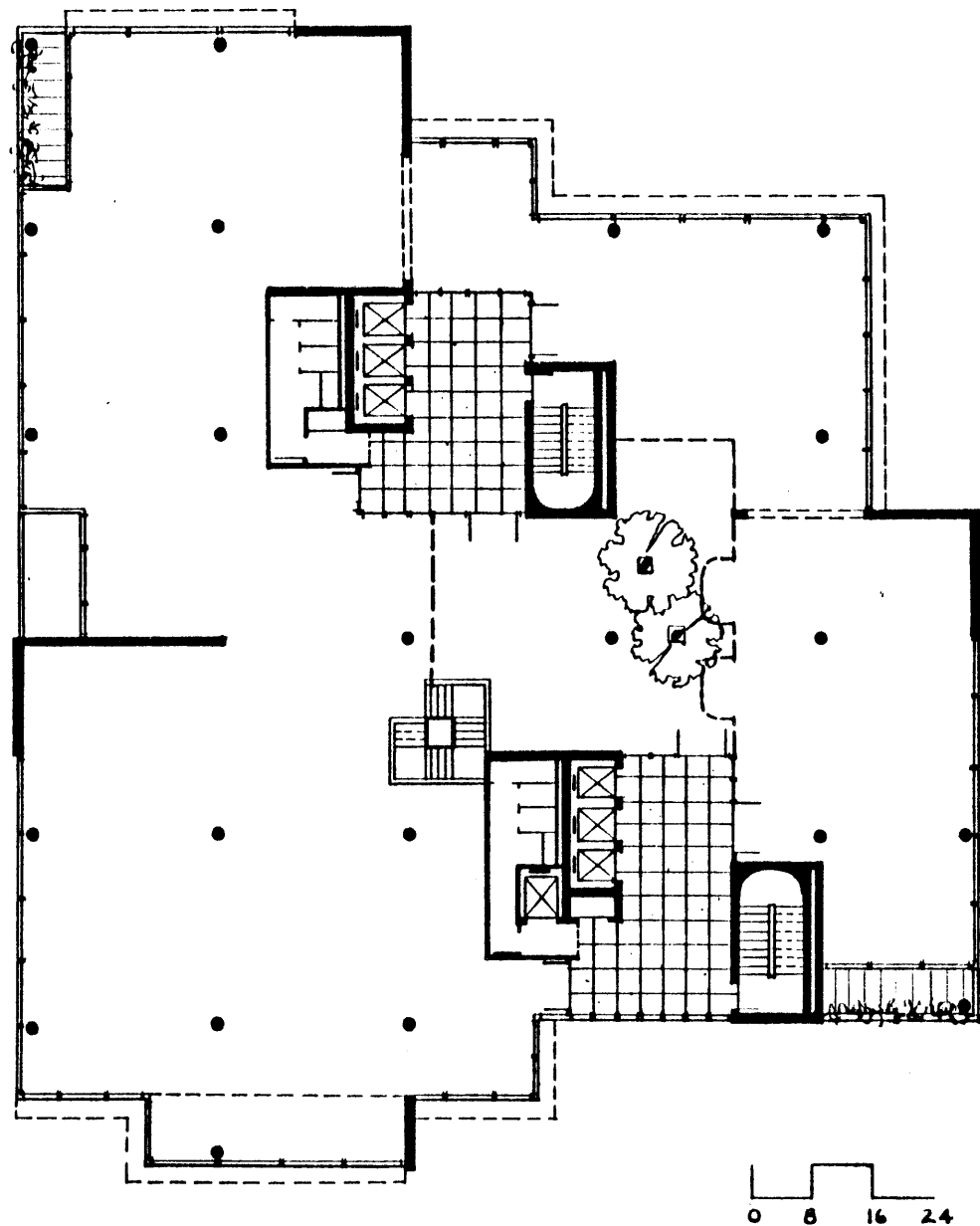
AXONOMETRIC

Typical Floor Plans

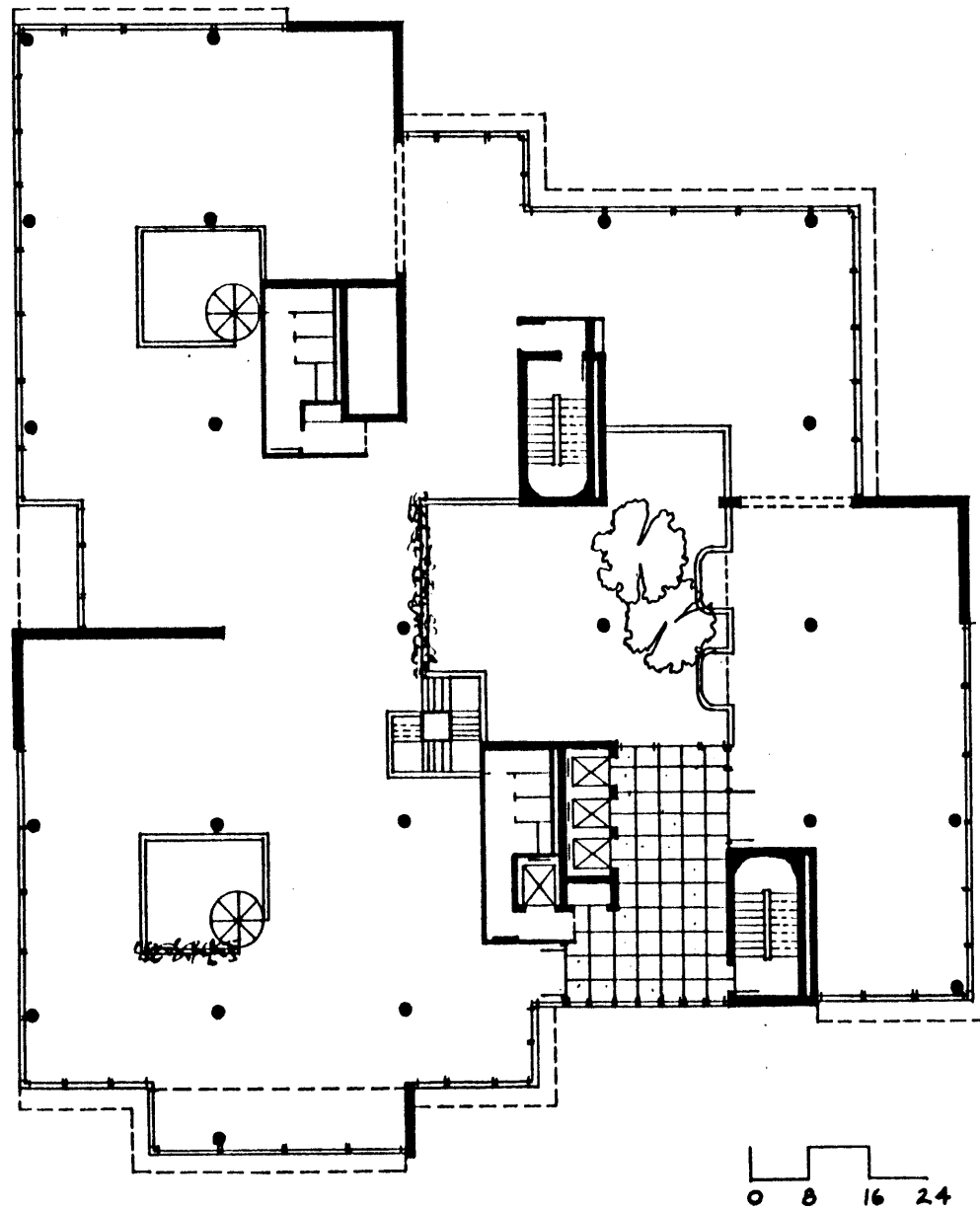




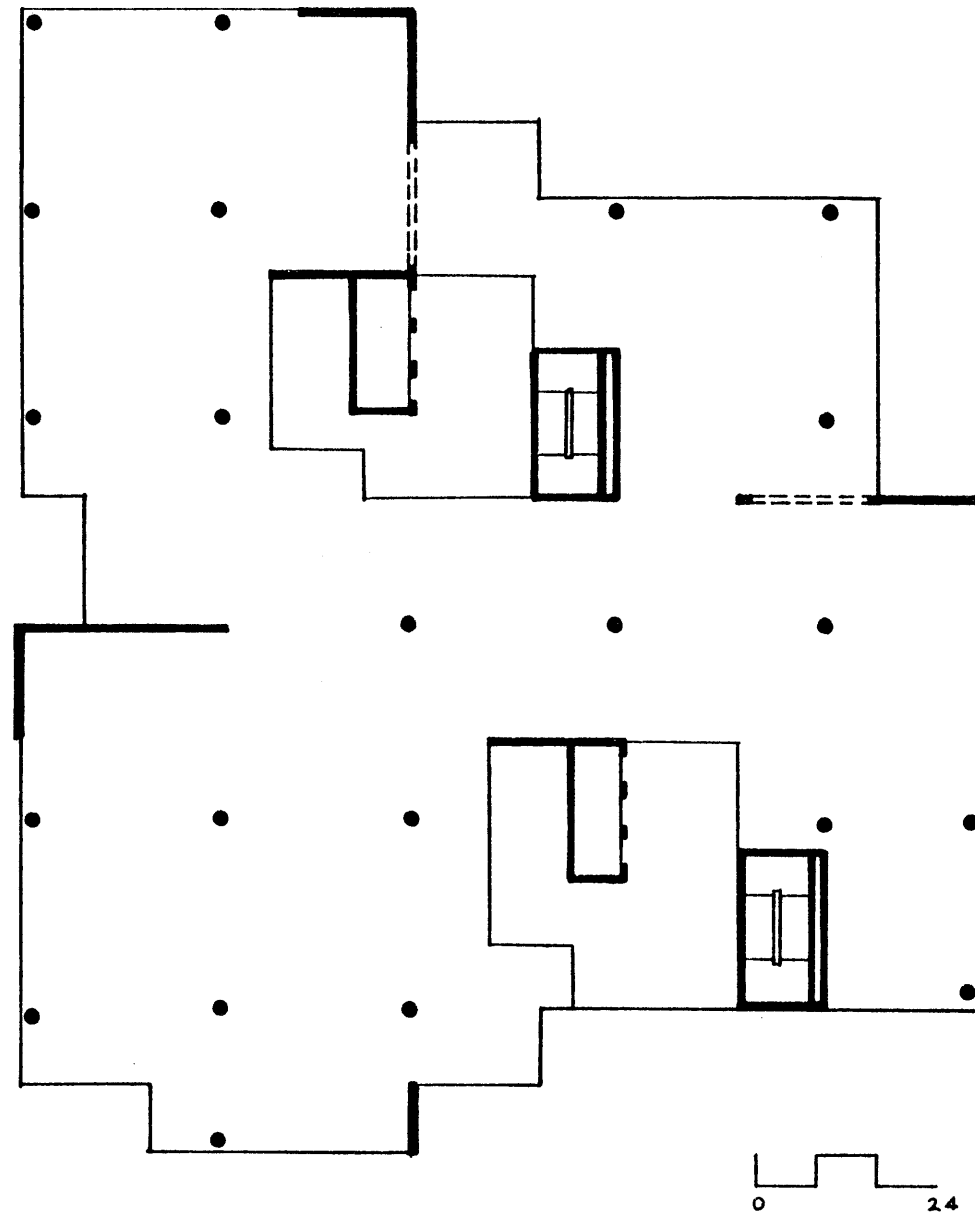
PLAN 1



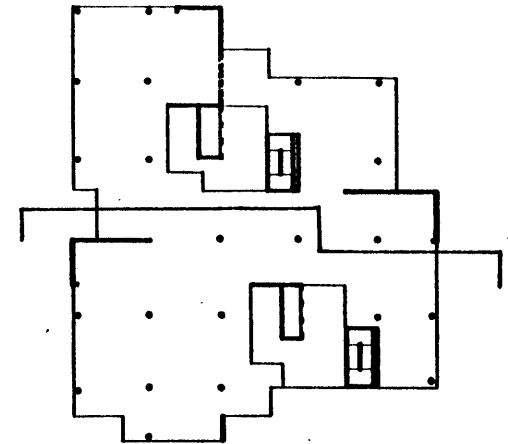
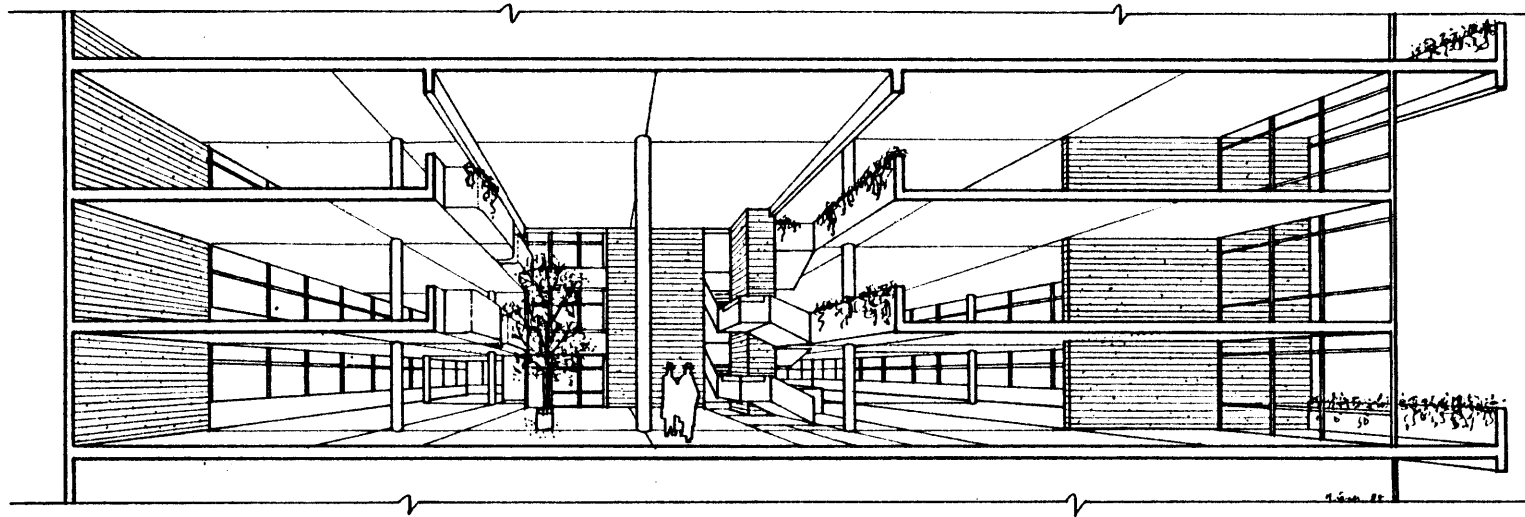
PLAN 2



PLAN 3

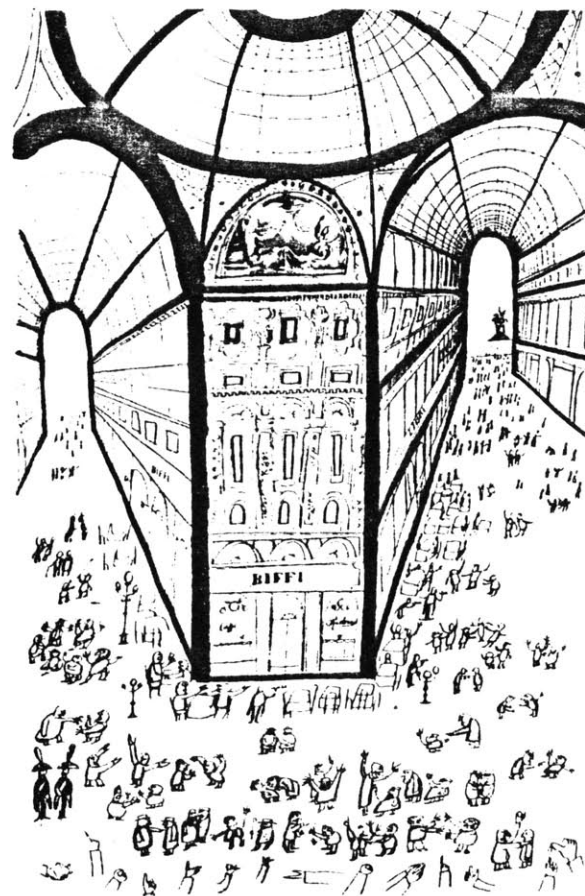


CORE WALLS



SECTION

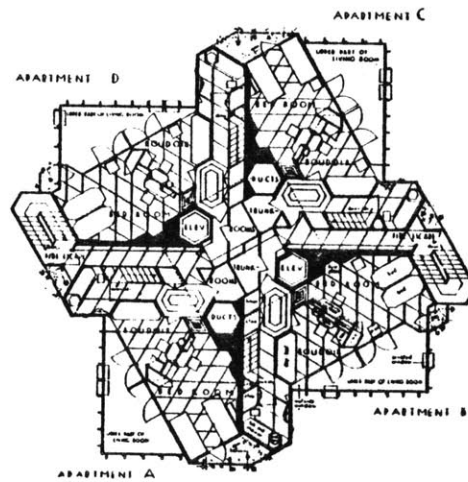
CONCLUSION & SUMMARY



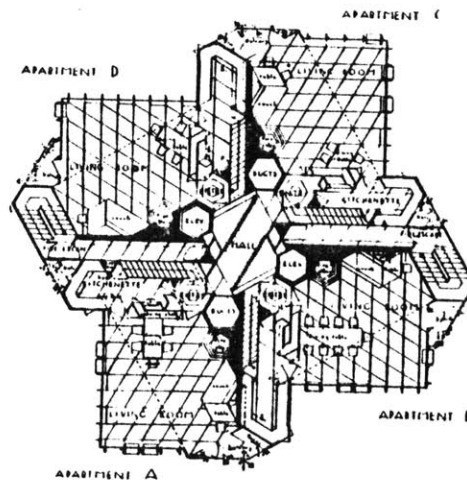
Drawing by
Saul Steinberg

The making of this thesis has been an interesting and a useful experience from several points of view. The concept of an alternative service core organization, that allows for the development of public space through the use of communicating floors, poses certain questions about the nature of public space in high rise buildings. In the first section of the thesis on vertical organization, I have divided my discussion into two areas - the decentralization or split service core arrangement; the second area, the public space issue and the kind of public space that can be created from this concept.

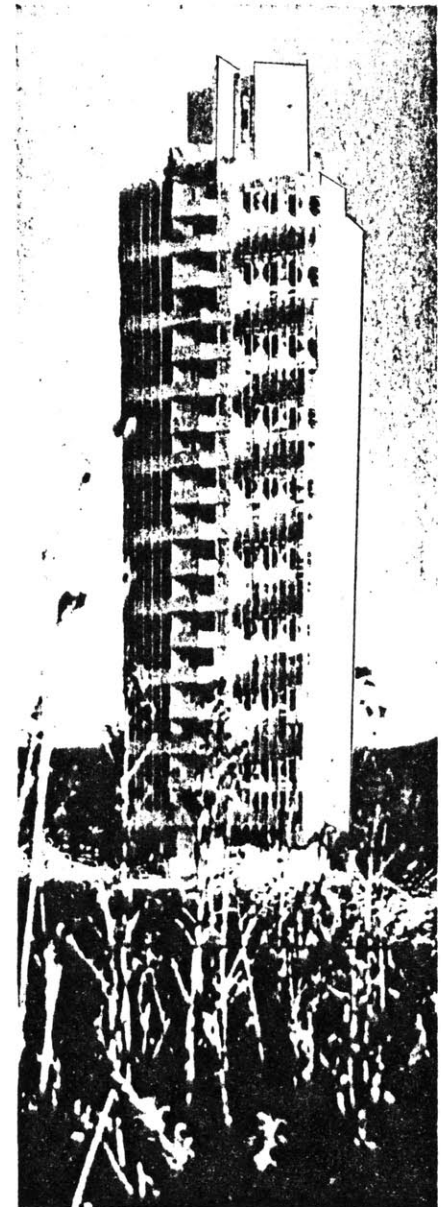
In discussing the core elements themselves, I have used a number of examples of high rise buildings that utilize different types of service core arrangements. I have criticized these plans for their lack of concern in including some potential for public space. At the same time, I have selected a series of building references that do include public space and demonstrate social commitment and concern for the nature of the work place. In selecting the public space references, the reader immediately notices that the examples are not high rise buildings. One must then wonder why I have chosen examples of non-high rise buildings to discuss a concept of what I think should be included in a tall building. The next question must then be, why are these concepts not presently included in high rise buildings? Regarding the first



TOWER, NEW YORK CITY,



F.L. Wright Architect



question, I selected examples of such buildings as the Larkin, the Boehringer and Sohne, and Centraal Beheer, because they represent on the part of their designers an attitude about the nature of the workplace; a concern for how people occupy and use offices. I considered these attitudes to be good general practice in a generic sense, for any office building. The problem becomes one of how to incorporate these kinds of attitudes into a high rise building and why it is not presently done. I believe the primary reason for not doing this, is the economics of a relatively small building footprint, such as a high rise. The examples I previously listed as representative of the kind of space that I believe desirable, may not translate so easily from a horizontal morphology to a vertical one. I suspect, most designers treat high rise buildings in a rather superficial way at a purely image level - choosing instead to use a stamped formula for resolving interior space and justifying it as economical and flexible. Little regard seems to be given to how people use and occupy space in the workplace.

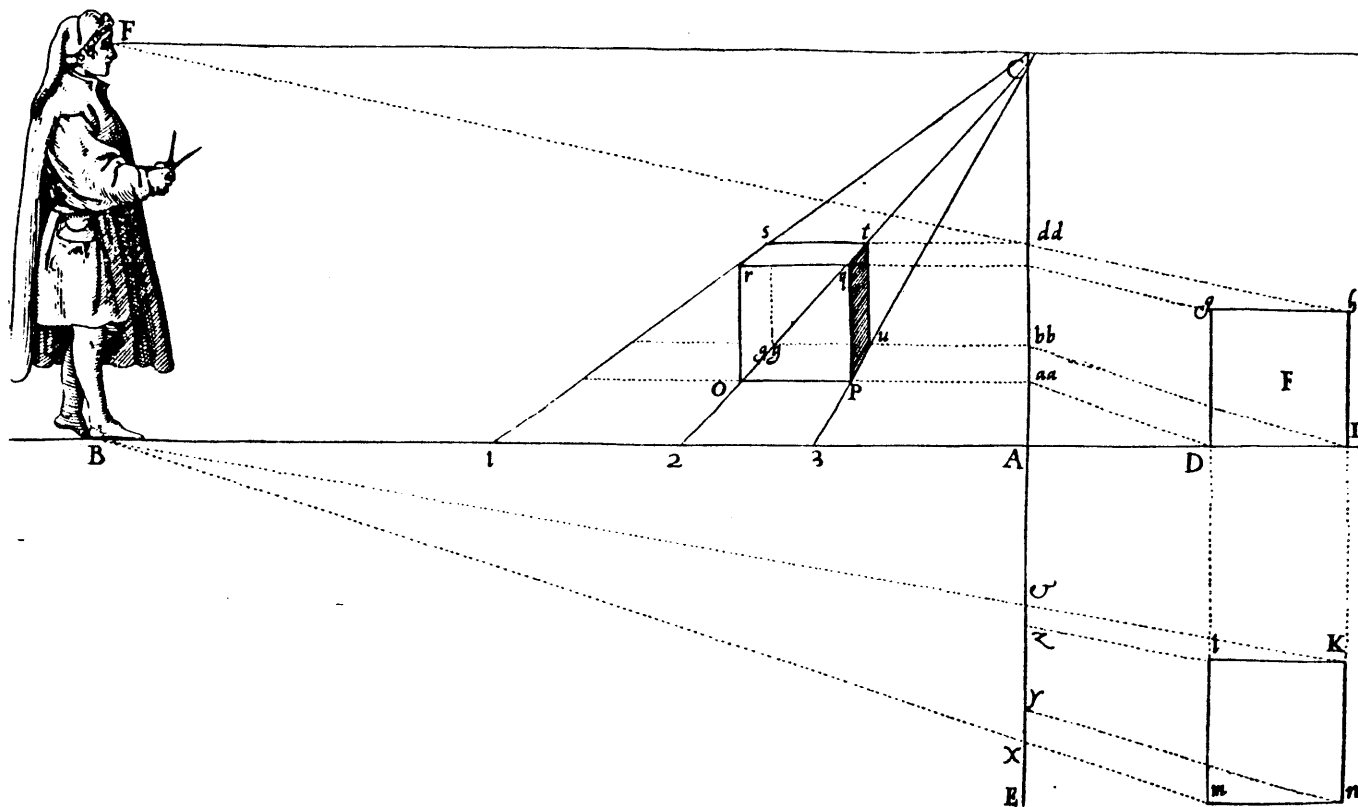
This thesis has developed the concept of split service core elements as one means of bringing spatial dimension and variety into the office workplace, with all the advantages that have been outlined in the previous sections. I do not know, at this point, how this concept would compare economically with the kinds of organizations that are currently practiced. An economic analysis would certainly be one of the next steps in testing the validity of this alternative organization. I know that in terms of usable net square footage, it can not equal a continuous floor slab with a centralized core. However, I do not think that the splitting of service core elements, in themselves, reduces the

building's efficiency. Rather, the opening of floor levels and the possibility of bringing other non-office functions poses the greatest problem to the economics of this alternative organization. The real possibility for this alternative, lays in its potential to add a new kind of social dimension to a building type that has previously not explored this possibility. Furthermore, this social dimension, when broken down to a three story cluster, has prototypical implications for a variety of building types - ranging from exactly what it is; a three story cluster, to a high rise multi-use building. The concept allows for growth in an additive process, and can be applied to housing as well; a brief example of this has been included in the appendix of this thesis.

The second section of this thesis is a design proposal for a specific site in downtown Boston. The purpose of the proposal section was twofold - one, it serves as a vehicle to test the service core organization to the scale of an actual building footprint on an actual site. Secondly, it allowed me to explore a wider range of decision-making necessary in working on a large scale project. Unfortunately, the proposal in this thesis, merely provides an indication of what the overall project might look like. There is, of course, not enough time in one semester to explore the building in substantial levels of varying detail to truly show how it would look; how it would be constructed; and how it would specifically be detailed with indications given about materials and textures. None the less, it has allowed me to explore a wider range of issues on a different scale,

rather than having spent the entire semester investigating the specifics of the service core elements.

In addition to the design proposal for the overall site, the thesis allowed me to explore some aspect about the nature of the high rise, as a building type, by selecting some specific aspects associated with this building type that I considered to be a problem. This then allowed me to speculate on how one might ameliorate that problem with a potential solution. So, from that point of view, I have found the making of this thesis a productive and worthwhile experience. It has, for me, become a type of working method that reveals a way of approaching, understanding, and working with a specific type of problem. The thesis can then be seen as a probe into specific issues regarding an attitude about a particular topic, which is then tested in the form of a design proposal.



Drawing From Vignola's Book on Perspective

Since the early 1960s, Parcel Seven has remained a vacant parking lot in the heart of downtown Boston. There have been numerous proposals made for how to develop the site, yet none were ever adopted. Recently, however, The Boston Redevelopment Authority has given tentative approval for the construction of a new 35 story hotel, for parcel Seven, to be designed by a local Cambridge architectural firm.

APPENDIX

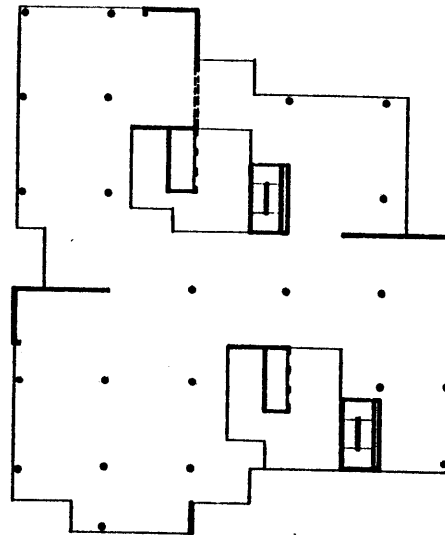
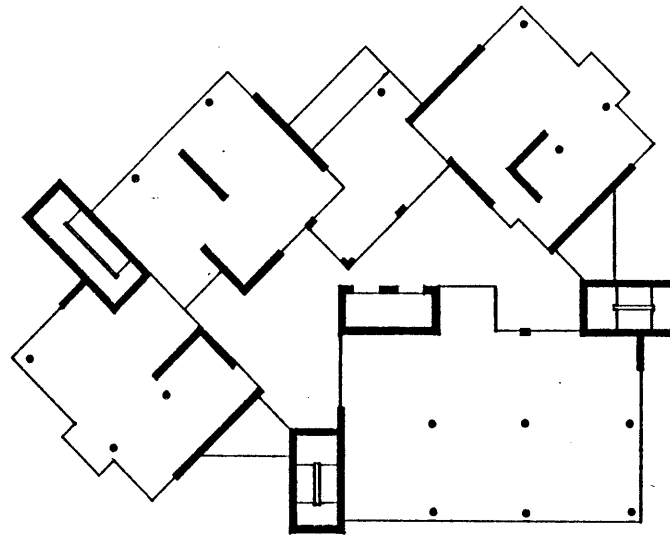
*Moreover she has wisely grown
Confirmed in her instinctive guess
That architecture breeds distress.*

Peter Blake
Boston 1976

The following project is presented in the form of an appendix, as part of a design exploration undertaken in a level three design studio at M.I.T. The project is a proposal for a residential high rise building on a steep sloping site near the Charles River in Watertown, Massachusetts. The program called for luxury apartment/condominium units with a certain number of public amenities to be incorporated within the Tower. Due to the size of the site and the steepness of its slope, low to medium rise housing with structured parking could be accommodated on the remainder of the site.

The focus of the studio concentrated on several issues, mainly, the integration of Tower to the land by the use of strong concrete/masonry ground forms which extend upward to become part of the core structure and vertical organization of the building. These vertical elements can then function as space defining elements inside the building, in addition to serving as structural elements and shear supports. The Tower then grows out of the land as part of the ground before assuming its object like quality, as a tall building. Another major issue concentrated on, was that of sun control and building orientation with elevations utilizing a louvered sun shading system as part of the facade articulation. Finally, the organization of public space was explored in terms of using the vertical core elements as spatial elements to define

98 Core Diagram
Residential High Rise

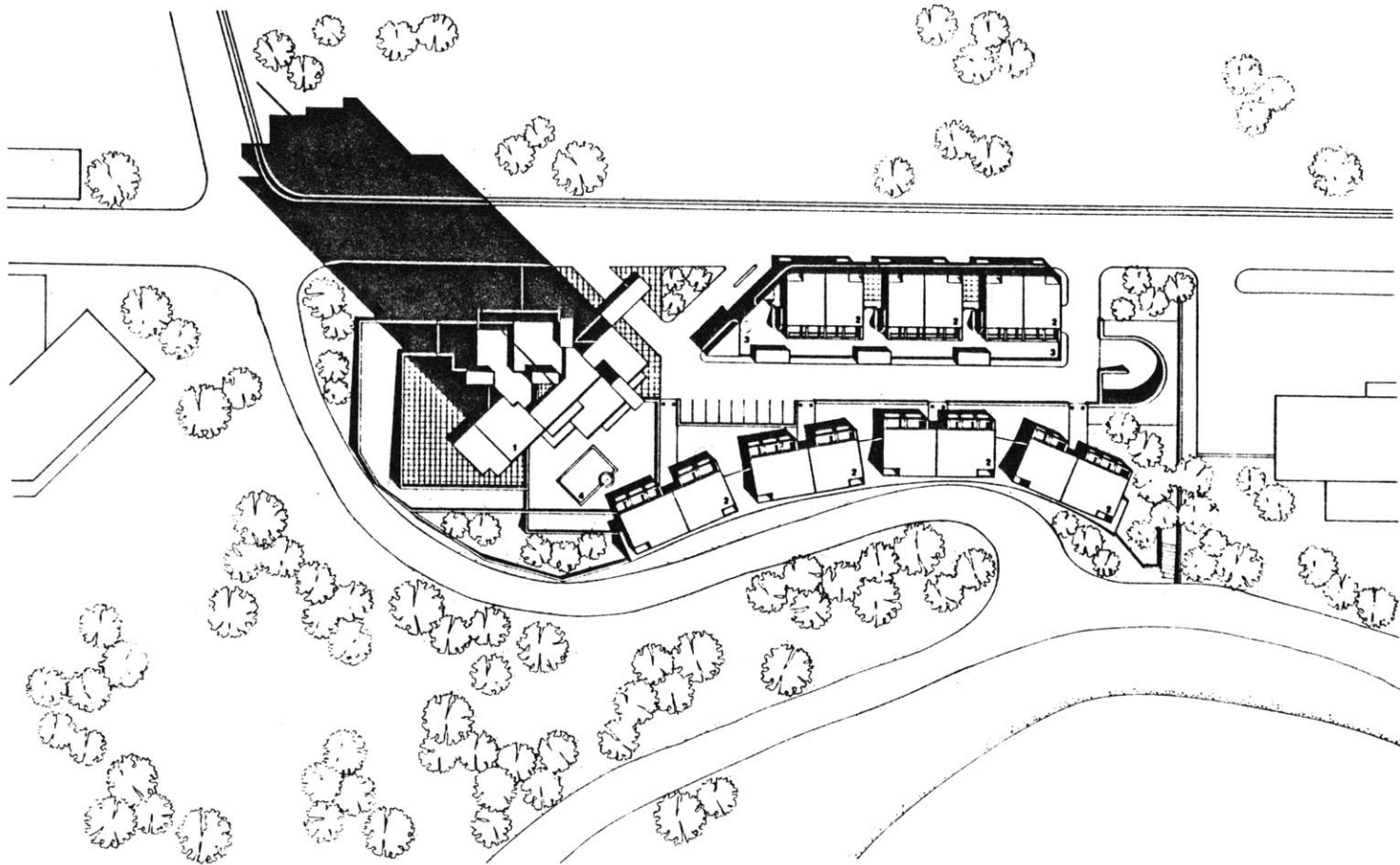


Core Diagram
Office High Rise

public space. The Tower is organized in three story clusters with 12 to 15 units per cluster. By using a cluster of units with shared communal public space, the building potentially becomes a place capable of promoting a greater sense of community and increased social interaction. The public space can then offer a scale of territoriality and variety to add yet, another level of definition in mediating between the scale of the individual and the scale of the building.

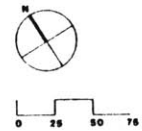
The level three design studio was directed by Associate Professor Robert J. Slattery of M.I.T.

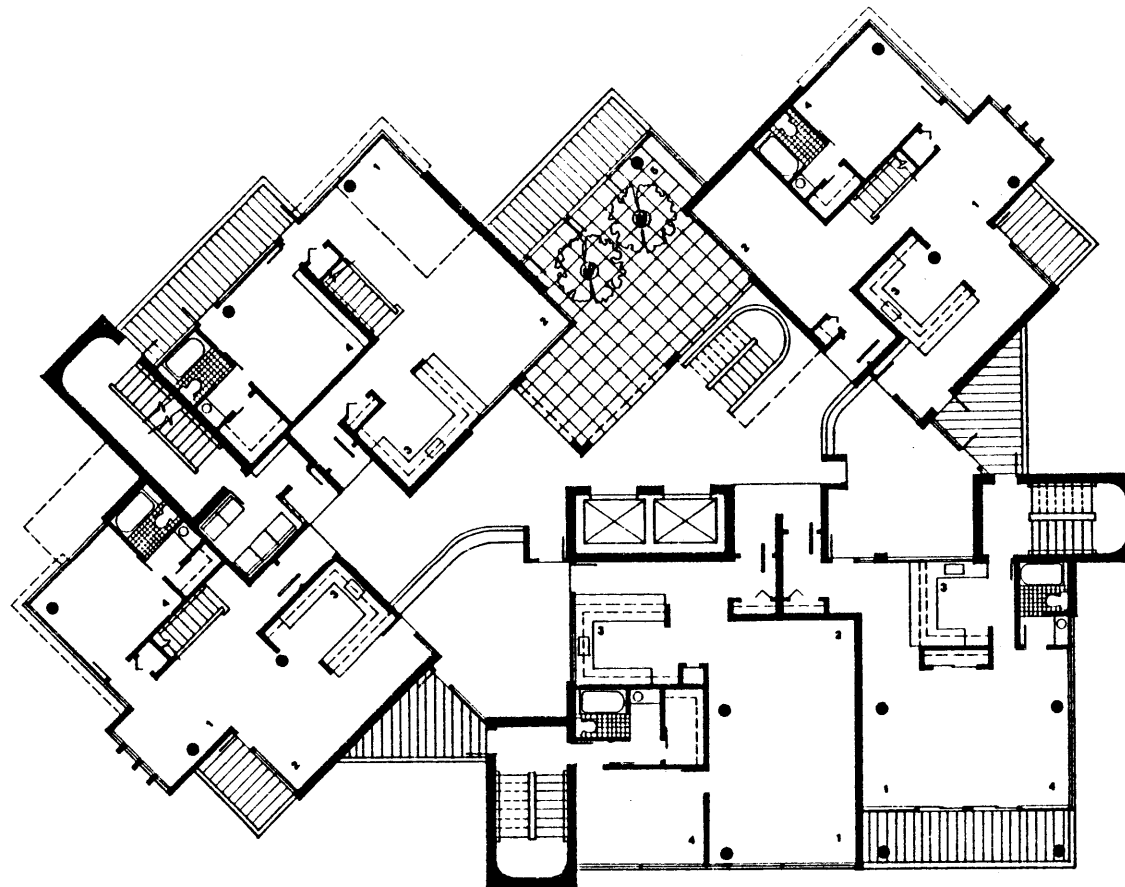




SITE PLAN

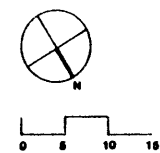
- 1 TOWER
- 2 LOW RISE HOUSING
- 3 PARKING GARAGE
- 4 POOL

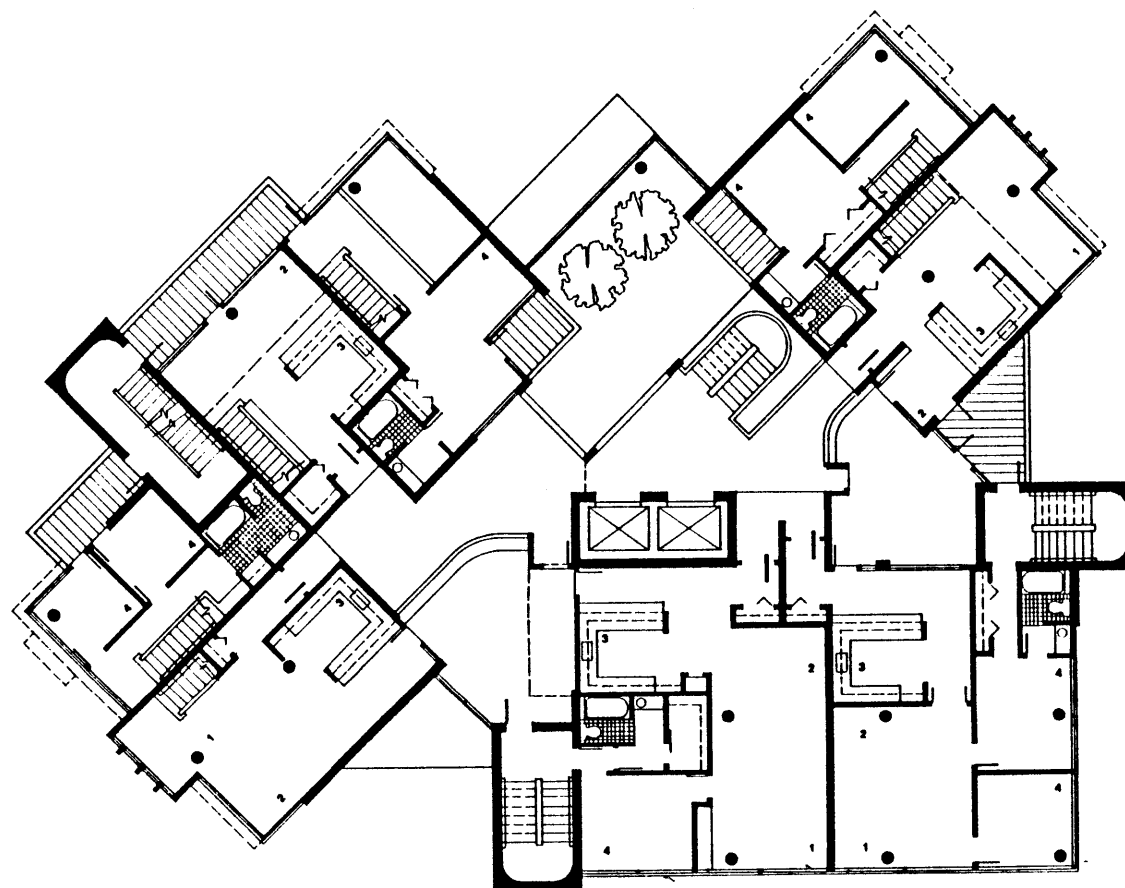




PLAN 1

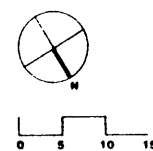
- 1 LIVING
- 2 DINING
- 3 KITCHEN
- 4 BEDROOM
- 5 GREENHOUSE

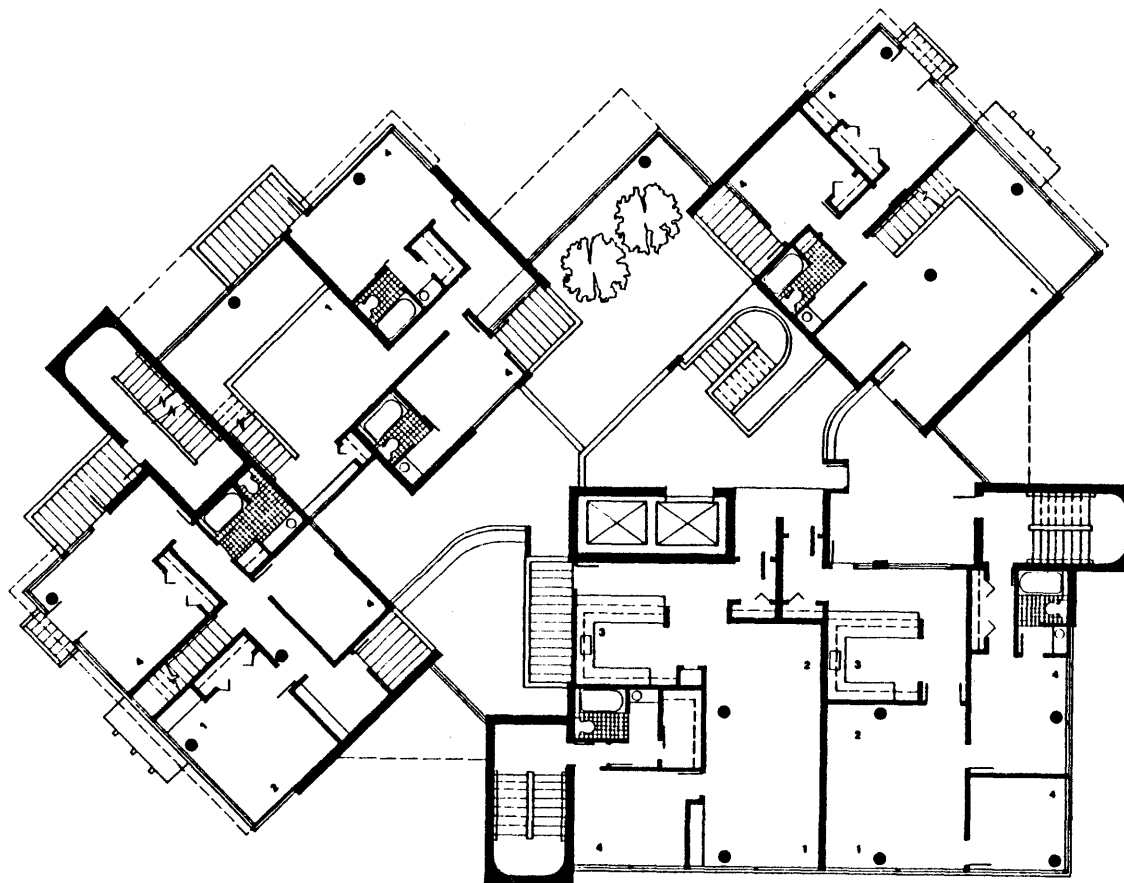




PLAN 2

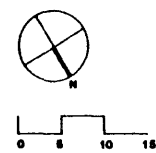
- 1 LIVING
- 2 DINING
- 3 KITCHEN
- 4 BEDROOM

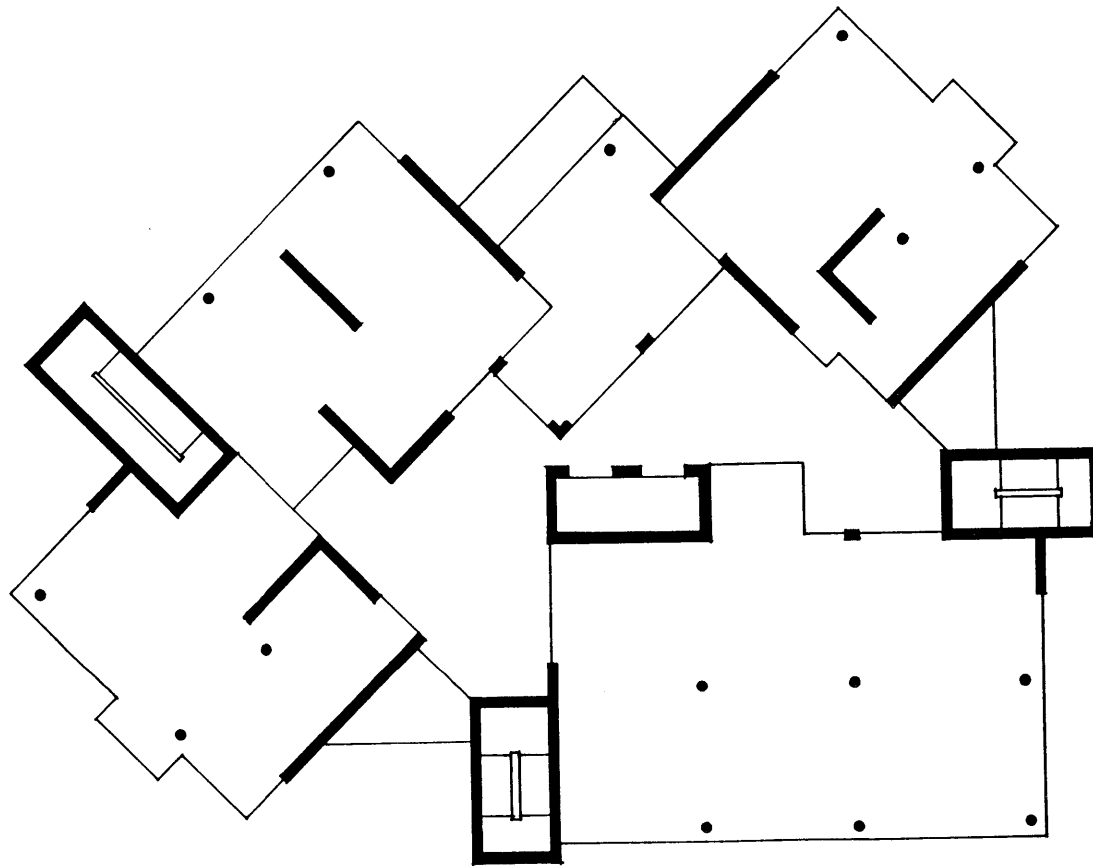




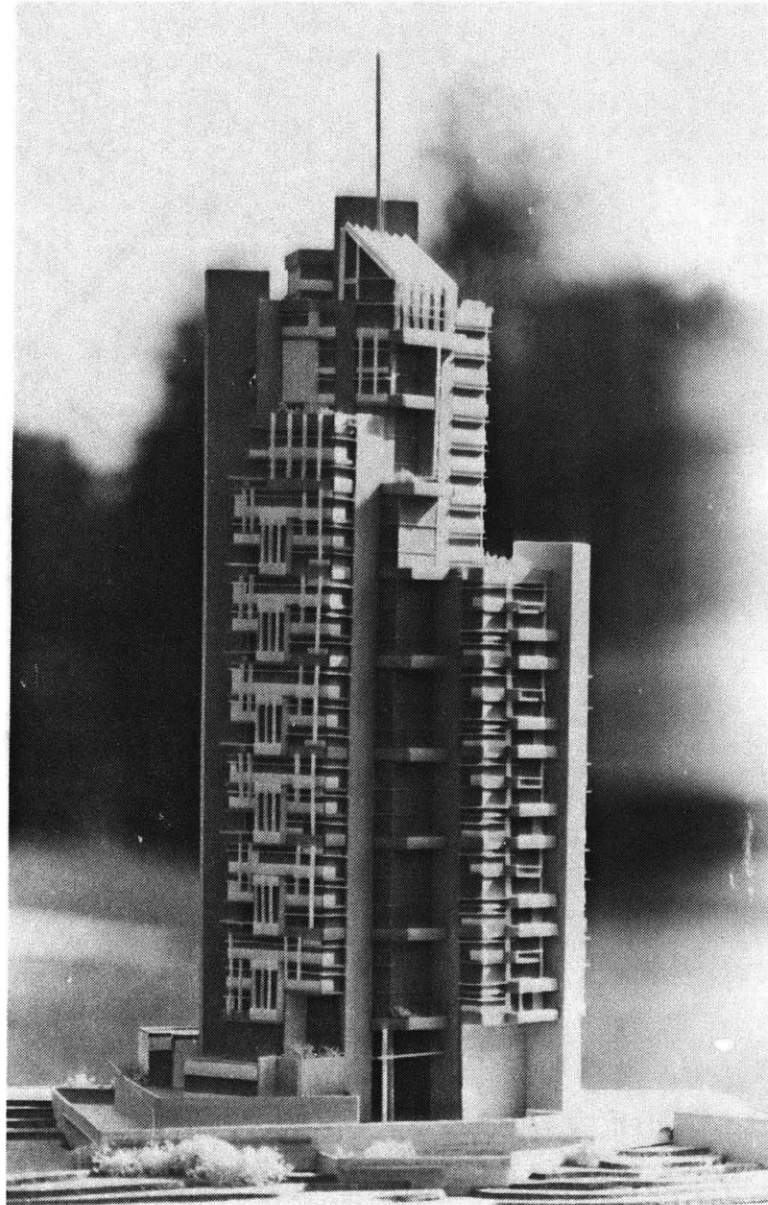
PLAN 3

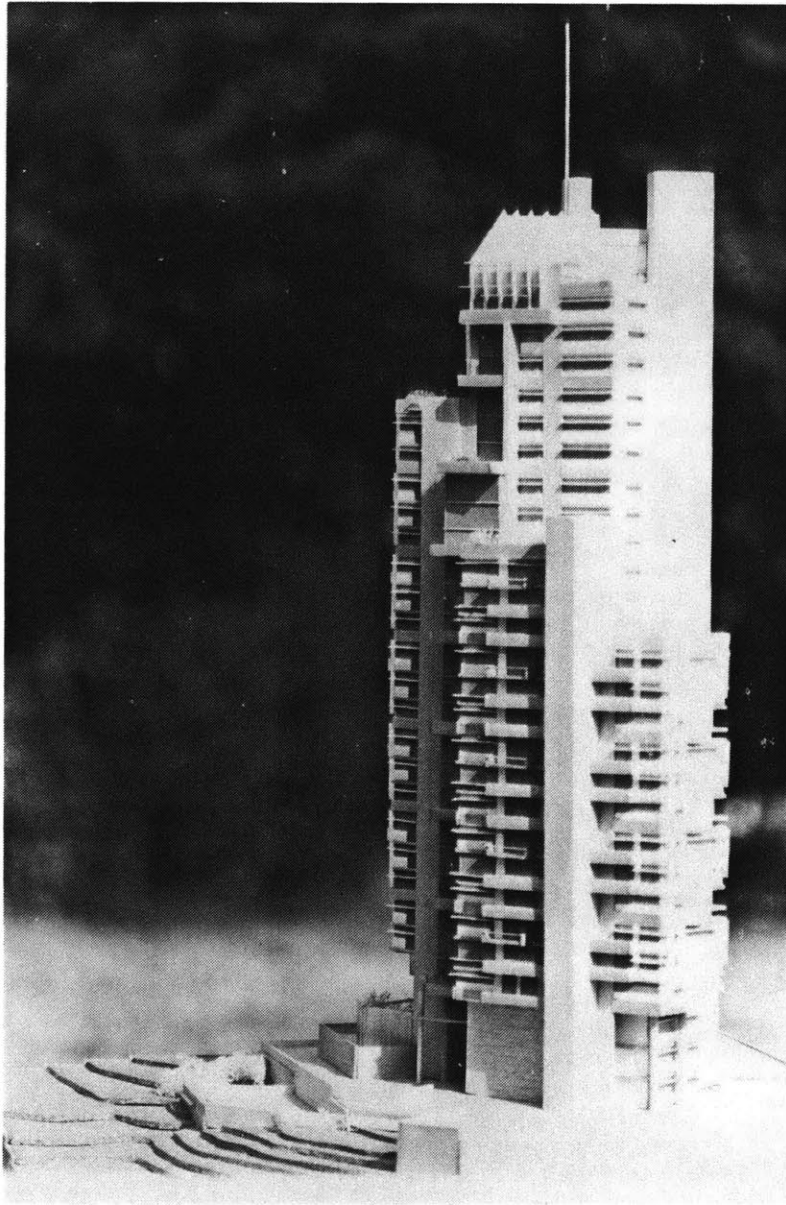
- 1 LIVING
- 2 DINING
- 3 KITCHEN
- 4 BEDROOM

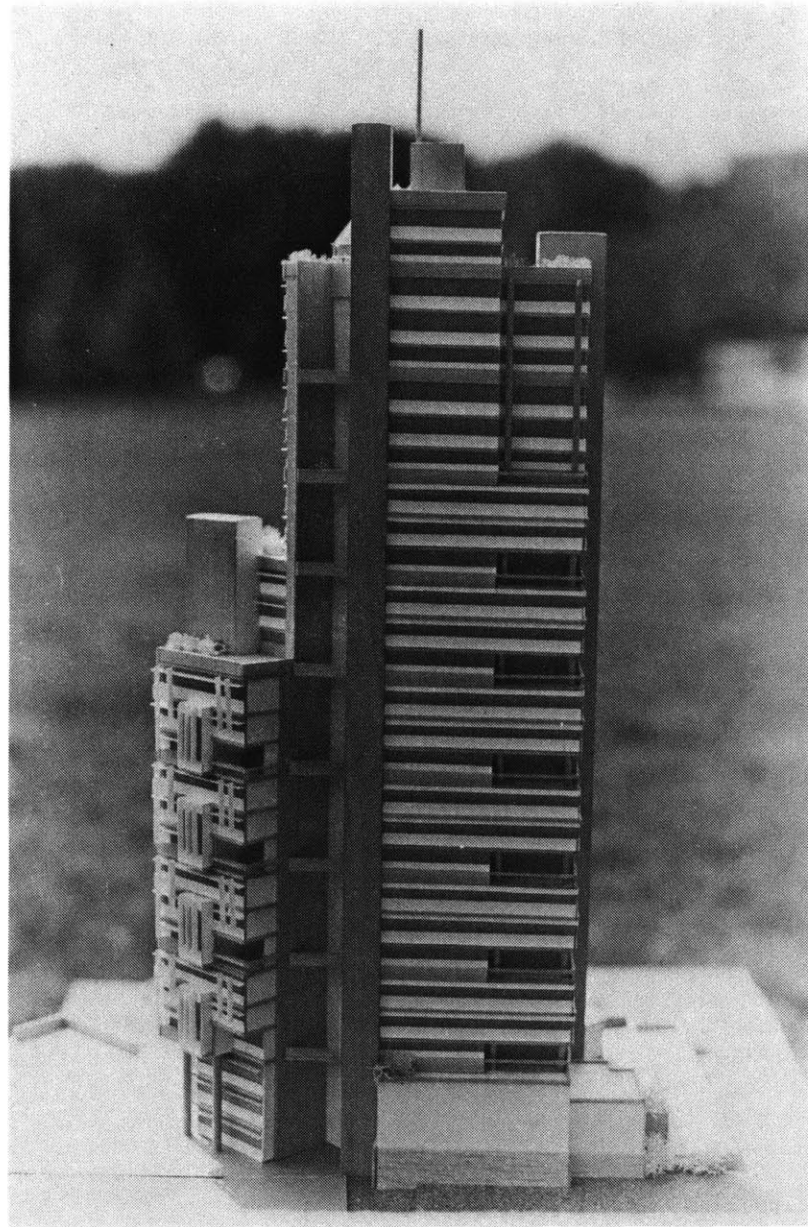




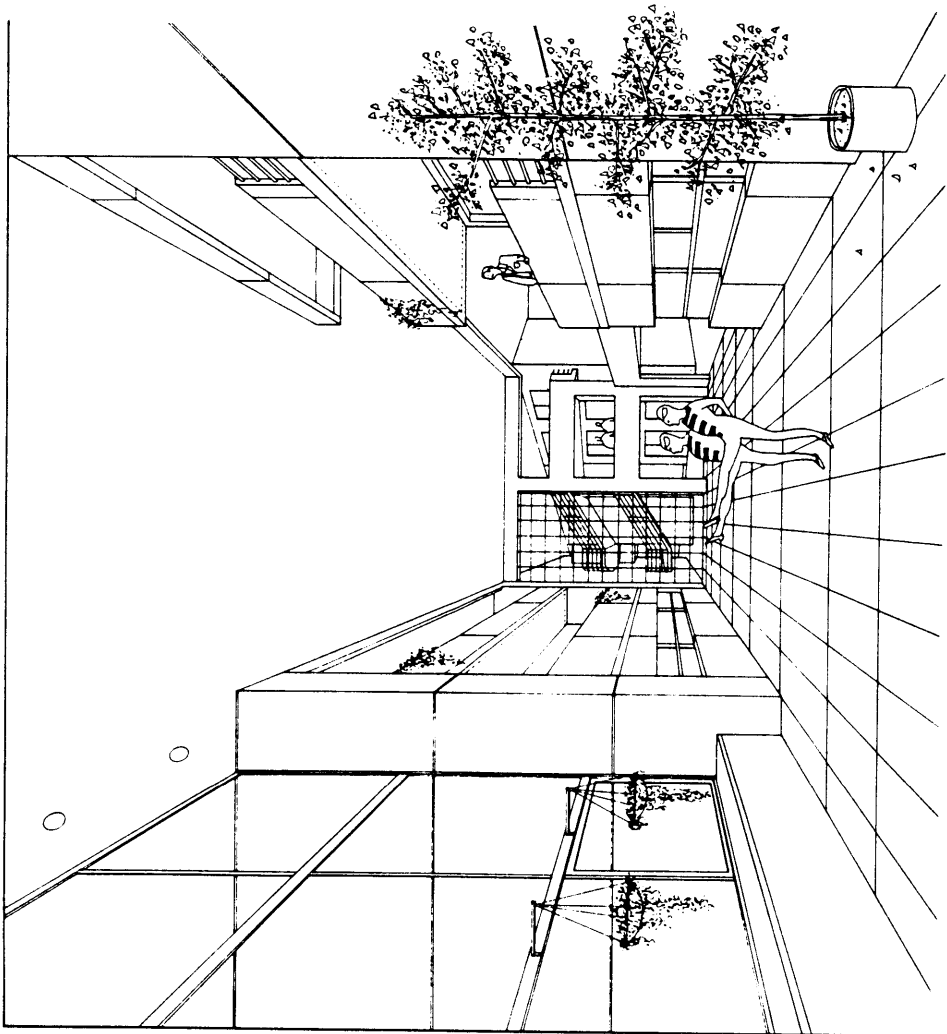
CORE WALLS

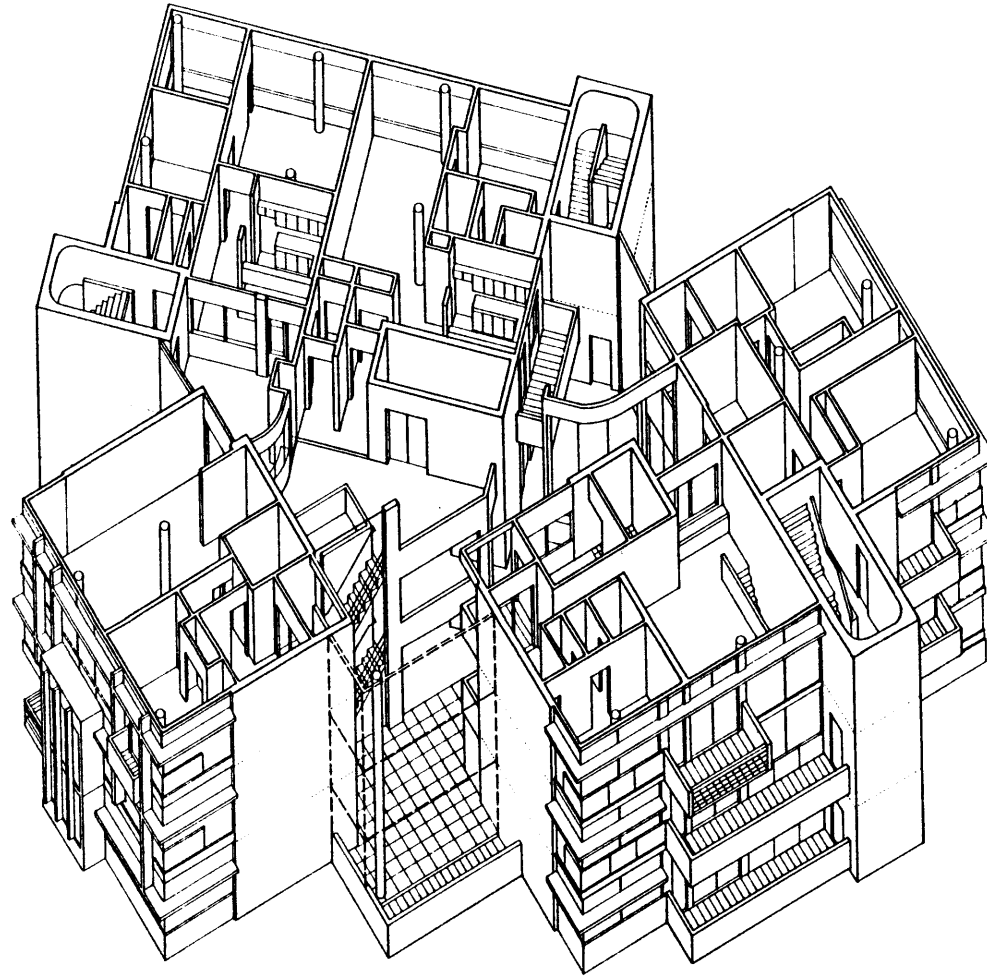






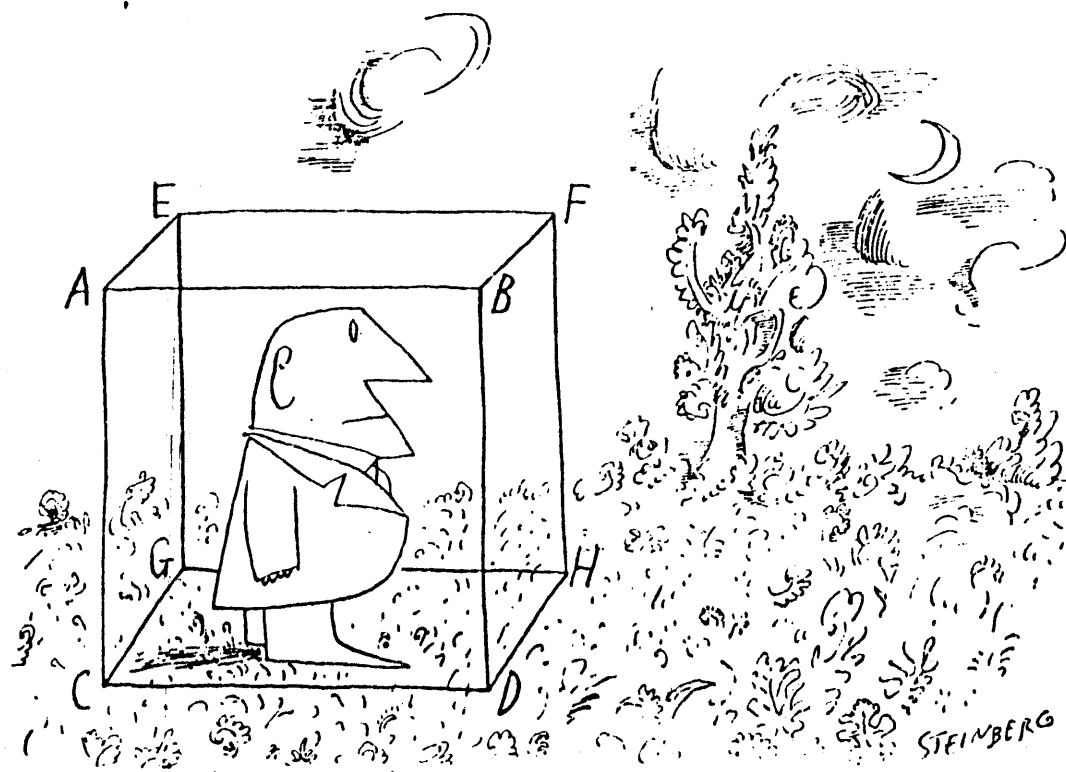






AXONOMETRIC

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Drawing by
Saul Steinberg

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115

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